BANK OF CANADA

The Thiessen Lectures

Lectures delivered by Gordon G. Thiessen,
Governor of the Bank of Canada

1994 to 2001

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by David Laidler, University of Western Ontario, London, Ontario *i*

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Foreword

*David Laidler**

It is a pleasure and a privilege to introduce this collection of lectures given by Gordon Thiessen during his time as Governor of the Bank of Canada.

The Bank is such a visible feature of our country's economic landscape that it is hard to believe it has existed for only 65 years, and that the Governor who is now retiring is only the sixth in the institution's history. His term, judged by the Canadian economy's performance, has been a great success. Only the much-watched value of the Canadian dollar (in terms of its U.S. counterpart), which has fallen from about 75 cents to the region of 65 cents since the beginning of 1994, might be a source of concern. But the Bank of Canada has had no target for the exchange rate since 1970, precisely to enable itself to concentrate on achieving domestic goals, and here it is much harder to find fault. Since Gordon Thiessen assumed the Governorship, unemployment has fallen from over 11 to under 7 per cent of the labour force, real gross domestic product has risen by about 30 per cent, while CPI inflation has moved only from around 2 per cent per annum to 3, or has stayed close to 2 per cent if we look at the usually less volatile "core" rate.

When Gordon Thiessen became Governor, what Bill Robson and I had termed "The Great Canadian Disinflation" (Laidler and Robson 1993) had already largely done its painful work of restoring monetary stability to an economy that had lacked it for two decades or more, and inflation targeting had been in place for three years. The task at hand was not to start from scratch, but to consolidate gains already made and ensure that Canada could finally begin to reap the real economic benefits of monetary stability. And, over the ensuing years, monetary policy got some significant help on the fiscal side, beginning with the 1995 federal budget.

The happy outcome of all this has been our current virtuous policy circle. Stable monetary policy and low domestic inflation create the preconditions for a flourishing real economy and dramatic fiscal improvements; and these, in turn, make the maintenance of stable monetary policy and low domestic inflation into the foreseeable future a credible possibility. If this all seems easy with hindsight, let the reader reflect on the international background against which it has been accomplished. Economic crises originating in

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Latin America in 1994–95, in Asia in 1997–98, and in Russia in 1998, not to mention an associated boom-bust cycle in the commodity markets that are so important for Canada: all these could have, but did not, derail Canadian monetary policy during Gordon Thiessen's governorship.

It is not always that a professional economist can argue with a straight face that the dismal science itself has provided tools that have helped to improve policy, and can cite as supporting evidence a collection of lectures given by a key policy-maker. But in this case it is possible. In the following pages Gordon Thiessen himself describes the theoretical vision underlying Canada's monetary policy regime, says something about how it has worked in practice, and places both theory and practice in the context of the evolution of economic thought in Canada and elsewhere since the Bank of Canada's foundation. Let me highlight some themes that run through these four lectures, which, by the way, I heartily recommend to all my colleagues who teach Canadian monetary policy courses and are in search of useful material for their reading lists.

For many readers, these will be particularly notable for their reminder of how long the effects on thinking about monetary policy during the Great Depression lingered into the post-war years, and not just in Canada. Rightly or wrongly, one lesson that had been learned was that monetary policy was relatively weak, and that lesson remained influential well into the 1960s. It took Friedman and Schwartz's (1963) reappraisal of the Depression, and, even more important, the inflation of the 1970s and 1980s to remind most economists and policy-makers alike of the power of monetary policy, particularly to do harm. Two contributions to economic theory of that era were also crucial to shaping future monetary policy in Canada, as the following lectures reveal.

First, Canada is a very open economy, but in the post-war years, monetary, not to mention fiscal, policies were often designed in the belief that openness was an inessential complication as far as their domestic effects were concerned. By 1960, policies based on such beliefs were beginning to have unexpected consequences, and it was then that Robert Mundell's (1961, 1962, 1963) work, inspired by these very problems, transformed the intellectual landscape. He taught us, among other things, that international capital flows were crucial—shades of many a future discussion of globalization—and that the domestic powers of monetary and fiscal policies depended crucially upon the exchange rate regime.

Second, the focus of monetary policy was short-run in the 1960s, another legacy of the 1930s. The conventional wisdom was that monetary policy should have multiple goals, and that its practitioners could safely switch

among these, depending upon which seemed most in need of immediate attention. Then, Edmund Phelps (1967) and Milton Friedman (1968) warned us that, though we may not be dead in the long run, we will at least find time to figure out what monetary policy is up to, and build that information into our subsequent decisions. The implications of this insight were profound, though they took time to sink in: in a closed economy, or an open economy under a flexible exchange rate, monetary policy can have only one long-run goal, the inflation rate; unemployment goals, again in the long run, must be pursued with other instruments; and inflation and unemployment only interact systematically, albeit significantly, when the economy is in transition from one inflation rate to another.

Now when officials of the Bank of Canada speak in public on any occasion, they speak both for themselves and for the institution, but public lectures by the Governor are not routine communications, and in the following pages Gordon Thiessen speaks first of all for himself. The reader can be sure that in the following pages he says all that he wants to say, and only what he wants to say, on topics that he wants to discuss. It is particularly significant, therefore, that these lectures so frequently and extensively refer to, and indeed exemplify, the single most important facet of the theory and practice of monetary policy to which his Governorship has contributed: namely, the role of transparency in both its conduct and the transmission of its effects.

When discussing the transmission mechanism of monetary policy in 1995 and experience with inflation targets in 1998, or when putting current practice in historical perspective in 1998 and 2000, Gordon Thiessen is always at great pains to explain what the Bank of Canada thinks and has thought it has been doing, and why it has come to those conclusions. He also discusses and tries to answer reasoned criticism of the Bank's policies. His lectures thus display a degree of frankness that would have been unthinkable in the 1960s, when he began his career at the Bank. They do so, moreover, because Gordon Thiessen believes that such acts of communication are, in and of themselves, one of the channels through which the Bank of Canada influences the economy in an inherently uncertain environment. The academic economist can very easily, and very often does, neglect such uncertainty, but the economist in a central bank does not have that luxury.

That the institution should have clearly defined goals, and a sharp vision of the factors that link the variables under its control to those goals, is a necessary condition for the success of monetary policy, but it is far from being sufficient. Only a utopian or a totalitarian could think it might be possible to find and put in place conditions to guarantee success under all circumstances; but it certainly helps if the people on the receiving end of policy understand the views of those who are in charge, and why they hold

them. This is the technical role for policy-transparency in the transmission mechanism, and it has a political role too, whose importance is also emphasized here: it enhances the accountability of the policy-maker to the electorate, a crucial and too often neglected matter in a democratic state.

The publication of this collection marks the end of Gordon Thiessen's Governorship, and celebrates its accomplishments, but it should not be seen as conveying the last word about anything. Transparency is an asset that depreciates very rapidly, so communication has to be ongoing, and if it is to enhance accountability, it must be a two-way process as well. The best compliment his readers can pay to the retiring Governor, then, is to treat these lectures as an invitation to continue with his successors the conversation he has done so much to encourage.

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Uncertainty and the Transmission of Monetary Policy in Canada

The HERMES-Glendon Lecture
Delivered at York University–Glendon College,
Toronto, Ontario, 30 March 1995

Uncertainty and the Transmission of Monetary Policy in Canada

Just over seven years ago, my predecessor, John Crow, delivered the Hanson Memorial Lecture at the University of Alberta. In it, he discussed a number of issues relating to the conduct of Canadian monetary policy, including the goal of monetary policy, the transmission mechanism, the use of monetary aggregates as policy guides, financial market uncertainty, and the role of the exchange rate. Seven years later, all of these matters remain topical.

What I want to do today is to focus on the interrelationships of two of these themes—uncertainty and the transmission of monetary policy to the economy. How do the various types of uncertainty influence the behaviour of economic actors? And how does uncertainty affect the transmission of monetary policy through the economy? In the first part of this lecture I will outline the Bank of Canada's view of the transmission mechanism, paying considerable attention to the role of uncertainty. In the second part, I will set out the various ways in which the Bank has tried to reduce uncertainty.

Before launching into the main part of the lecture, I want to spend a few minutes discussing the various kinds of uncertainty that impinge on the economy and on the policy process. One type of uncertainty arises because of the possible occurrence of events that are largely unexpected. Such shocks can be international or domestic in origin. A recent example was the rise in U.S. long-term interest rates through the first half of 1994. Other sources of shocks can be events that are certain to occur, but whose precise nature or outcome is as yet unknown, for example, a budget, or the upcoming referendum in Quebec.

A second type of uncertainty arises because the private sector may be unsure about the longer-run objectives of economic policies. To complicate the issue further, there can be an interaction of these two types of uncertainty when the markets are unsure about how to interpret the response of the authorities to a shock. Do the actions of the central bank reflect a change in its long-run objectives or simply a response to the shock with no change in objectives? One of the reasons why markets may be unsure about how to interpret the central bank actions is that they may view the shock differently than the central bank does. In particular, there may be differences of view as to whether the shock is likely to be long-lived or short-lived and as to its implications for the economy.

In deciding on its policy actions, the central bank is in turn faced with an uncertainty about how the financial community and the public will respond

to its pronouncements and actions. Will the response be the same as in the past, or will economic relationships be different on this occasion? For example, how will aggregate demand be affected by central bank actions leading to changes in interest rates and the exchange rate? And how will inflation and inflation expectations react to these actions?

What can the central bank do to reduce uncertainty? First, it can try to reduce the uncertainty of the public and of financial markets about its responses to the various shocks. It can do this by making clear the longer-run goal of monetary policy, the shorter-term operational targets at which it is aiming in taking policy actions, and its own interpretation of economic developments. Moreover, by committing itself to a longer-term goal and sticking to it, as well as by lessening uncertainty about its own responses to shocks, the central bank may be able to lessen the effect of the shocks on private sector behaviour.

In sum, uncertainty of various kinds is pervasive. Given its importance, uncertainty deserves much greater prominence than it typically receives in textbook discussions of monetary policy, where it is too often neglected. In my discussion in the rest of this lecture of the transmission mechanism and the initiatives taken by the Bank to reduce uncertainty, I will try to remedy this neglect.

Part 1—The Transmission Mechanism

When central banks take monetary policy actions, they set in motion a series of consequences that starts with an influence on financial markets, works through changes in spending, production and employment, and ends with an effect on the price level or, more specifically, the rate of inflation in the price level. Economists call this chain of developments the "transmission mechanism."

The instrument that the central bank has at its disposal in taking monetary policy actions is its control over the issuance of a crucial financial asset—typically referred to in the economics literature as "base money." Base money, which is composed of bank notes issued by the central bank and deposits at the central bank held by financial institutions, is important because it provides the ultimate form of liquidity in the financial system. Financial institutions hold such a liquid instrument—one that involves no risk of default and no delay in obtaining value—in order to settle among themselves the net flows from payments that take place in the economy every day.

Fundamentally, monetary policy is about the pace of monetary expansion. The rate at which the central bank allows base money to expand over time will either encourage or restrain the financial system in its expansion of money and credit. This in turn will influence the demand for goods and services in the economy. And it is the level of demand relative to the ability of the economy to produce goods and services that eventually determines the rate of inflation.

However, in practice, the relationship of base money to aggregates of money or credit or to measures of aggregate demand in the economy is not stable enough for the Bank of Canada to operate by expanding base money at a given rate. Instead, as you will see from the description of the transmission process that follows, we rely on the linkage from base money to interest rates and the exchange rate, and from these financial market prices to aggregate demand and then to inflation, as the basis for making monetary policy decisions in Canada.

These linkages from monetary actions through to the rate of inflation have been a subject of intense scrutiny over many years. Some parts of the transmission mechanism, such as the effect that changes in interest rates have on aggregate demand and inflation, have received a great deal of attention. Other parts, such as the linkages from central bank actions to movements in interest rates and the exchange rate, have received less attention outside central banks. What I want to do in this part of the lecture is to focus on the role of financial markets in the transmission mechanism and on the influence of various kinds of uncertainty on the response of these markets to economic developments and to monetary policy actions.

First stage: From central bank actions to very short-term interest rates

The first step in the transmission process takes place when the central bank adjusts the size of its balance sheet to alter the supply of base money in the financial system. Traditionally, commercial banks held a certain amount of base money because of legally imposed reserve requirements. However, since the elimination of reserve requirements in Canada, a demand for base money by the major banks and certain other important financial institutions exists because they settle the net outcome of the daily clearings of payments directly on the books of the Bank of Canada. Hence, such institutions are

called direct clearers. And "settlement balances" is now the appropriate term to describe the deposits of the direct clearers at the Bank of Canada.[1]

Central banks can adjust the supply of settlement balances available to the direct clearers in a number of ways. While textbooks typically focus on open market operations, in Canada we rely mainly on a technique involving daily transfers of government deposits between the direct clearers and the Bank of Canada. The precise way in which the amount of settlement balances is increased or decreased by the Bank is essentially a technical matter. What is central to the process is that the Bank of Canada is able to provoke a reaction from the direct clearers by confronting them with an excess or shortfall of settlement balances. They act promptly to eliminate the imbalance because of cost considerations. Excess balances are costly because no interest is paid on them to financial institutions, while shortfalls have to be covered by overdraft loans from the Bank of Canada at a penalty rate of interest.

In essence, we use our control over settlement balances to influence the interest rate most relevant to transactions by financial institutions aimed at adjusting these balances. This is the rate on one-day loans, sometimes called the overnight rate of interest. Movements in the overnight rate in turn influence other interest rates and the exchange rate.

On a typical day, after the previous day's payment items have cleared, some direct clearers will end up with a surplus of settlement balances and others with a shortfall. It is only if the Bank of Canada acts to create an overall shortfall or surplus for the group as a whole relative to their desired balances at the Bank, that it can alter the overnight interest rate. Faced with a shortfall, the direct clearers will call one-day loans to security dealers, sell very short-term liquid assets from their portfolio, or bid more aggressively for very short-term wholesale deposits. All three actions tend to put upward pressure on the one-day rate of interest and other very short-term rates. Conversely, when the direct clearers as a group have a surplus of settlement balances, they will tend on balance to extend more one-day loans to dealers, buy very short-term liquid assets, and be less aggressive in bidding for very short-term deposits, thereby putting downward pressure on the one-day rate and other very short-term rates.

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1. Financial institutions also hold notes and coins to meet the public's demand. But whereas supplying bank notes allows the Bank of Canada to acquire assets that it can use in its market operations, the supply is passively adjusted to the demand for notes and is not part of the monetary policy process as such. The central instrument of monetary policy is the Bank's supply of settlement balances to direct clearers.

However, even at this initial stage of the transmission process the Bank is faced with an element of uncertainty, since the desired settlement balances of direct clearers cannot be forecast with precision. Hence, at times, there may be a lag of a day or two before the Bank's actions have the desired effect on very short-term rates.

Second stage: From very short-term interest rates to the rest of the term structure and to the exchange rate

The actions of the Bank of Canada to alter the one-day rate will in turn influence the rest of the term structure of interest rates as well as the exchange rate, but that influence is not a precise one. It depends very much on the expectations and reactions of the financial markets.

The level of money market rates beyond the very short term is closely related to the market's expectations of the future path of one-day rates. If the Bank has just taken action to push up the one-day rate, say because of the release of new information about the strength of demand pressures in the Canadian economy, the impact of this increase on interest rates for one month, three months and so on will depend on how long market participants expect the central bank to maintain the higher one-day rate. The less uncertain the market is about the Bank's intentions, the smoother will be the response of other short-term rates.

In interpreting the movements of interest rates further out the maturity spectrum, it is best to think of medium- and longer-term rates in Canada as depending on expectations of the future path of real interest rates (including risk premiums) and that of the rate of inflation. Expectations of real interest rates over the long term (apart from risk premiums) are likely to be related mainly to international factors.[2] These include expected worldwide movements in aggregate demand over the next few years and the expected profile over the longer run of the supply of saving (net of government dissaving) and of the demand for investment around the world. Risk premiums in interest rates will reflect such factors as the expected path of fiscal policy and political developments in Canada. Expected inflation, for its part, depends mainly on the market's expectations about monetary policy in Canada. Given the uncertainty surrounding all of these expectations, it is not surprising that markets at times react strongly to the release of information that changes their views about any of these factors. With

2. Divergences between the expected patterns of aggregate demand in Canada and abroad will also have some impact on the real interest rate and on expected movements in the real exchange rate for the Canadian dollar. But those factors become less important the further out one goes on the maturity spectrum.

financial markets around the world becoming much more open in recent years, the size of international financial flows has increased considerably. Thus, a major shift in expectations in one market can have a substantial effect on interest rates elsewhere in the world.

The effect of a change in very short-term interest rates on the exchange rate for the Canadian dollar is also a function of market expectations. The longer a new level of very short-term rates encouraged by the Bank's actions is expected to prevail, the greater the effect on the exchange rate. So the clearer the basis for the Bank's actions, the more predictable will be the effect on the exchange rate. However, the exchange rate is also affected by factors other than Bank of Canada policy actions. For example, the Canadian dollar–U.S. dollar exchange rate is also influenced by U.S. monetary policy, by the stance of fiscal policy in both countries, by the relative positions of the economic cycle in Canada and the United States, by the standing of the U.S. dollar relative to overseas currencies, as well as by political events. Once again, the release of new information can change expectations about future developments in any of these factors in a major way and thus have a significant influence on the exchange rate.

To illustrate the importance of market expectations, let us look at what would happen if the Bank acted in a way that the market viewed as inappropriate to the circumstances.

Suppose, for example, that the Bank acted to ease the one-day rate of interest in response to new information suggesting there was less inflation pressure in the economy than had been anticipated. What if the market did not share the Bank's interpretation of this new information and felt that the Bank's actions involved taking excessive risks on the side of higher inflation? Investors would immediately become more reluctant to hold Canadian dollar instruments at current interest rates, because of their expectation of higher inflation in the future. Moreover, investors' uncertainty about the future would increase because, at higher rates, inflation tends to be less predictable. There would thus be upward pressure on interest rates beyond the shortest term, both because of the higher expected rate of inflation and because of the higher risk premiums that investors would require in order to compensate for the increased uncertainty. Moreover, with the increased reluctance of investors to hold Canadian dollar instruments, the exchange rate would come under downward pressure. If the market began to extrapolate the downward movement of the currency, it would intensify the upward pressure on interest rates as investors moved out of Canadian dollar investments to avoid a potential capital loss.

In the end, while actions by the Bank to bring about a decline in one-day rates in the face of a market that thought that such a change was inappropriate might still force a decline in interest rates at the very short-term end of the money market, perhaps even out to 30 days, they would result in a rise in rates further along the yield curve because of increased fears of inflation and a declining currency.

Investors in long-term bonds have become much more sensitive over the last 20 years to any hint of inflation or to any suggestion that a central bank has become more willing to take risks with inflation and therefore with a depreciating currency. This heightened sensitivity is the result of the high rates of inflation that prevailed in Canada and abroad during the 1970s and 1980s. Similarly, long-term bond markets now respond to fiscal concerns quickly and directly, presumably because of their concern that countries may act to monetize the debt when it becomes too burdensome.

There are also times when markets become particularly nervous and volatile because of economic shocks or concerns about policies, and central bank actions have to be directed to coping with disorderliness in markets. For example, there have been a number of occasions in the past decade when downward momentum in the Canadian dollar undermined confidence and encouraged extrapolative expectations of further declines in the Canadian dollar, which then fed back on interest rates, pushing them sharply higher. In such circumstances, the Bank's immediate task was to calm markets by helping them to find new trading ranges with which they were comfortable. Once the markets settled down, the Bank was able to focus attention on the underlying economic situation, which typically had become lost to view during the turmoil.

Third stage: From interest rates and the exchange rate to aggregate demand

We have now discussed in some detail how actions taken by the Bank of Canada influence interest rates and the exchange rate and how the particular outcomes depend in an important way on the views and expectations of financial markets. The next stage in the process involves the transmission from interest rates and the exchange rate to aggregate demand. Here I can be brief as this part of the process has been widely studied and the views we take in the Bank are very much in the mainstream of the economics literature.

Changes in interest rates affect aggregate demand through a number of channels—the cost of capital, the incentive to save rather than to spend, and the effects on wealth and cash flow. The main components of demand that

are affected are housing, consumer spending on durables, business investment in fixed capital and inventory investment. The extent of the response of spending will depend in part on how long the changed level of interest rates is expected to persist. This will be an important factor for those entities that borrow at the shorter end of the market.

The way in which the exchange rate affects demand is also relatively straightforward. A change in the value of the Canadian dollar will initially change the prices of those goods and services produced in Canada that are traded internationally and whose prices are set in world markets, vis-à-vis those whose prices are not, or at least not entirely, determined in world markets. These changes in relative prices will set in train a series of demand and supply responses that will affect the output of Canadian-produced goods, largely through their impact on exports and imports.

Of course, these responses do not take place overnight. And their size is dependent on whether the markets expect the change in the exchange rate to be transitory or long lasting. Take, for example, a situation in which a sharp downward shock to aggregate demand in Canada leads to a decline in interest rates and to a significant depreciation of the Canadian dollar. The Canadian dollar price of those Canadian products whose prices are determined in world markets, such as most raw materials, will rise, making their production more profitable and inducing producers to exploit existing sources of production more intensively. Over time, suppliers will be induced to increase their capacity to produce such goods. How strong the investment response will be, and how soon it will begin, will depend importantly on expectations about the duration of the lower value of the Canadian dollar. If the decline were expected to be transitory or if there were a great deal of uncertainty about its persistence, producers would hesitate to expand their productive capacity.

All in all, the conclusion from this brief review of the third stage of the transmission mechanism is that there will typically be a significant response of spending to interest rate and exchange rate movements but that neither the extent nor the timing can be pinned down with precision. Expectations of future developments and the uncertainty surrounding the likely outcomes can have an important effect on how much and how quickly various entities change their expenditure patterns in response to changes in interest rates and in the Canadian dollar. In other words, the lags are long and subject to uncertainty.

Fourth stage: From aggregate demand to inflation

The final link in the long chain is from movements in aggregate demand to the rate of inflation. In our view, underlying inflation is affected primarily by the level of slack in the economy and by the expected rate of inflation.

The driving force behind inflation over time is, thus, the cumulative effect of the pressure of aggregate demand on capacity. Moreover, in the years of high inflation, there was a particularly close link between the prevailing rate of inflation and expected inflation. Thus, a period of excess aggregate demand resulted in an increase in the rate of inflation, which, in turn, fed quickly into expected inflation, putting further upward pressure on inflation in a process that eased only when the excess demand was eliminated.

However, to go back to my general theme, the world is a more uncertain and unpredictable place than this brief description of the linkages from interest rates and the exchange rate to aggregate demand and inflation would imply. Both aggregate demand and prices are in practice frequently subject to shocks. Demand shocks can be external or domestic in origin. The latter include fiscal actions as well as sudden shifts in desired investment by companies or purchases of consumer durables by households. There are also supply shocks, which typically affect prices directly. These are events such as those leading to the increases in oil prices in the 1970s, natural disasters that affect the supply and prices of agricultural products, and changes in technology and shifts in world trade, which can affect the availability of goods and their prices.

Such shocks will make demand and prices more uncertain, and they can also make it very difficult to estimate how much pressure aggregate demand is putting on the rate of inflation. Supply shocks can shift potential output in the economy. Potential output is in any case very difficult to pin down empirically and one must therefore be cognizant of the uncertainties surrounding any measure of slack.

The role of money and of credit

You may have noted that as yet I have not discussed the roles of the money holdings of the general public and of credit in the monetary transmission process. This is not to say that we think that such monetary and credit aggregates are unimportant; in fact, we follow their movements very closely. But we use them primarily as indicators of future developments, rather than as links in the long causal chain from Bank of Canada actions to the rate of inflation.

Our research indicates that the growth of real M1 (i.e., the narrow monetary aggregate, M1, deflated by prices) provides useful information on future real output growth, while the growth of the broader monetary aggregates is a good leading indicator of the rate of inflation. The monetary aggregates thus provide a useful cross-check on other projections of output and inflation, and rapid growth in these aggregates that is inconsistent with the economic situation and cannot be accounted for by specific financial developments can be an early warning signal of the need to tighten monetary conditions.

Credit has, until recently, been ignored in most of the mainstream literature about the transmission mechanism. Implicitly, economists have treated it as determined by the demand for funds by borrowers and passively accommodated by financial institutions. A more recent literature has focussed attention on the granting of credit, both as a microeconomic phenomenon and as an element in the transmission mechanism. And it has been given a more practical bent in the United States by the debate over the "credit crunch" of the early 1990s.

The aspect of the analysis of credit markets that is of particular interest to the Bank is whether its monetary policy actions lead to a systematic adjustment by financial institutions of their non-price terms and conditions of lending. If there were such adjustments that were not correlated with interest rate movements, the Bank would need to track them closely in assessing the effects on the economy of its policy actions. It is also important to determine whether there are autonomous credit market shocks, such as "credit crunches," that have broad macroeconomic implications and that need a response by the monetary authority.

Although considerable research has recently been done on these issues in the United States, the credit literature in Canada is still in its infancy. A number of papers on the subject were presented at a conference held at the Bank of Canada this past November. While not definitive, these papers did throw some light on several of the issues raised by the credit approach. Most notably, it would appear that credit is not particularly helpful as a factor explaining the economy-wide growth of nominal spending nor particularly useful as an indicator of changes in the trend of such spending.

Part 2—Initiatives Taken by the Bank to Reduce Uncertainty

The principal theme of the first part of this lecture has been that because of uncertainty of various kinds, the impact on the economy of monetary policy actions is not closely predictable. In this part, I want to discuss the initiatives

that we at the Bank have taken to reduce one kind of uncertainty—the uncertainty that may exist about the Bank's behaviour—with the objective of improving the operation of financial markets and of the economy more generally. I will discuss five initiatives.

Establishing price stability as the goal of monetary policy

The Bank has discussed the benefits of price stability on many occasions, most fully in the *Annual Report* for 1990. I do not propose to repeat that discussion here, but I want to underline that one of the benefits of price stability is the increased certainty it brings to the economy. The inflationary process is always an uncertain one, and it adds immeasurably to the difficulties facing savers and investors, borrowers and lenders, and employers and employees when they are making economic decisions that involve judgments about the future.

Some people object to this focus on the control of inflation as the final objective of monetary policy because they worry that it might encourage central banks to ignore the level of economic activity and employment. There is no question that monetary policy has a short-term influence on demand, production and employment, but surely the notion of a long-run inverse trade-off between inflation and unemployment has been widely discredited. In the long run the impact of monetary policy is on inflation, and the central bank must set its objective in terms of the variable it can expect to influence.

I hasten to add that the goal of price stability is not at odds with the achievement of economic growth and expanding employment. Because price stability is helpful in making investment decisions that will improve productivity, it is good for growth. Moreover, following a steady path aimed at maintaining price stability means that monetary policy will operate as a sort of automatic stabilizer for the economy. Excessive demand pressures that could lead to inflation are dampened by such a monetary policy, while weak demand that could result in price deflation leads to more stimulative monetary conditions. By contrast, a monetary policy that accommodates inflation will lead to cycles of boom and inflationary excesses, followed by recessions made more difficult by the need to correct inflation-related distortions. Price stability will thus contribute to overall economic stability.[3]

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3. A number of issues related to the behaviour of the economy under price stability were discussed at a conference on price stability held at the Bank of Canada in October 1993.

Inflation-control targets

When a country is suffering from inflation, the mere announcement or reiteration by the central bank of the goal of price stability will not suddenly persuade the public to shift their expectations and begin planning on the basis of price stability. The notion of price stability is somewhat vague and may leave questions in the minds of participants in the economic process. What does price stability mean in terms of the actual change in the price index? Over what time period will it be achieved?

This is the kind of situation we faced in Canada after our experience over the 1970s and 1980s, and it indicated to us that the general commitment by the Bank to move gradually to price stability still left too much public uncertainty about the objective of monetary policy. In other words, after two decades of inflation the credibility of such a general commitment by the Bank of Canada to price stability was not sufficient by itself to contribute to bringing about the changes in behaviour and expectations that would facilitate a decline in inflation.

In response, the Bank of Canada and the Government of Canada introduced in February 1991 a set of explicit targets to help make the path to price stability more concrete. The inflation-reduction targets aimed at bringing the rate of inflation down to 2 per cent (or a band of 1 to 3 per cent) by the end of 1995, to be followed by a further downward movement to price stability. In December 1993, a further set of inflation-control targets was jointly announced by the Bank and the government, which extended the band of 1 to 3 per cent inflation through 1998. This is to be followed by a movement to price stability, to be defined operationally by 1998.

By making its inflation-control objectives more explicit, the Bank hoped not only to influence inflation expectations but also to reduce uncertainty in the economy and in financial markets. Moreover, with credible targets, inflation expectations, and therefore inflation, are less likely to react to the temporary demand and supply shocks described earlier. The targets also act as a form of discipline on the Bank by making it more accountable for its actions. And that in turn makes monetary policy actions more predictable and less a source of uncertainty for others as they make economic decisions.

How have the targets worked out in practice? As you know, inflation has declined significantly over the years that the targets have been in place and, at about 2 per cent at present, is near the centre of the target band. However, I would not argue that the targets were single-handedly responsible for that decline. Other international and domestic factors have also been at work since the targets were first announced. Nonetheless, my assessment is that

the targets have made a useful contribution to the achievement and maintenance of a low rate of inflation in Canada over the last four years. For example, it is likely that the prediction of very low inflation now being used by many Canadian firms in their medium-term planning is to an important extent attributable to the commitment of the Bank and the government to the targets.

The use of intermediate targets and indicators

The long lags and uncertainties in the transmission process leave everyone, including central banks, in a rather unsure and unsettled position while awaiting the effects of monetary policy actions on inflation. As a result, central banks have made use of various intermediate indicators and have at times set targets in terms of those indicators in order to assist in the conduct of policy and to provide more information and more comfort to observers that monetary policy was on track.

Following the abrupt rise in inflation and its persistence in most countries in the 1970s, central banks shifted their focus from operational targets for short-term interest rates to intermediate targets for quantitative variables expressed in nominal terms. Thus, many central banks established intermediate targets in terms of monetary aggregates. These were expected to provide an anchor for monetary policy and to avoid the type of policy that inadvertently accommodated the accelerating inflation of the late 1960s and early 1970s.

The Bank of Canada adopted such a target, expressed in terms of the narrow aggregate, M1, during the period between 1975 and 1982. As it turned out, this target, although useful initially, did not enable the Bank to hold down the rate of inflation when demand pressures built up in the late 1970s. Part of the problem was that M1 was much more responsive to the Bank's actions on very short-term interest rates than were aggregate demand and inflation. Moreover, extensive financial innovation made interpretation of the aggregate increasingly difficult, and it was finally dropped as a target in 1982.

While the Bank has examined other aggregates to use as possible intermediate targets in the period since 1982, none of them turned out to be sufficiently reliable. As a result, for some years we again had to rely upon operational targets for short-term interest rates.

On the face of it such a policy approach might seem to have all the same problems and uncertainties encountered in the late 1960s and early 1970s when operational targets for interest rates did not provide an anchor against

accelerating inflation. What was different this time was a much closer focus on the objective of price stability and, more recently, the adoption of inflation-control targets.

A further important evolution in recent years has been the use by the Bank of monetary conditions rather than short-term interest rates as its operational guide to policy. When we use the term monetary conditions we mean the combination of short-term interest rate and exchange rate movements. And we aim at a path for monetary conditions that would bring about a path for aggregate demand and prices consistent with the control of inflation.

The Bank of Canada adopted monetary conditions as an operational guide because we recognized that, as described earlier, under a flexible exchange rate regime monetary policy operates through both interest rates and the exchange rate. Hence, when the central bank is acting to ease or tighten its policy stance (in response to new information) it must take into account developments in both channels through which its actions influence aggregate demand. Similarly, when there is an exogenous shift in the exchange rate, for example, a depreciation resulting from political concerns, the monetary conditions concept would clearly indicate the expansionary nature of the shock and the need to tighten interest rates to offset it.

The Bank constructs an index of monetary conditions (the MCI) by weighting short-term interest rates and the effective exchange rate by the relative size of their estimated effects on aggregate demand. Hence, a movement in the MCI is a shorthand measure of the effect on aggregate demand of the changes in both channels through which monetary actions have their principal effect.

Now, I want to be careful not to oversell the MCI. It is not used in a mechanical way to set policy. For example, we do not respond to every exchange rate wiggle by trying to adjust interest rates. But if some development caused the exchange rate to move to a new trading range and it appeared to be ready to remain there for some time (and if there were no other shocks affecting aggregate demand), the Bank would try to offset its effect on aggregate demand by encouraging an offsetting movement in interest rates.

It is also worthy of note that the Bank has no direct control of the "split" of its actions between interest rates and the exchange rate. At times, because of the uncertainties in financial markets described earlier, an easing in the stance of monetary policy will result in a small decline in interest rates and a sizable depreciation of the Canadian dollar. At other times, the same action might lead to a larger decline in interest rates and little depreciation of the dollar. In this context, let me underline that the Bank does not control and

does not attempt to control the level of the exchange rate. It is the market's interpretation of what the central bank is trying to do, in the context of the economic environment, that determines what happens to the exchange rate in response to central bank actions.

While we use monetary conditions as an operational guide, it is not possible to set a target path for the MCI that remains unchanged over time. Rather, monetary conditions must constantly be re-evaluated and adjusted to respond to shocks of one sort or another to ensure that the economy remains on track to the inflation-control objective.

Target ranges for the overnight rate

With the use of monetary conditions, the linkage goes from our actions in adjusting settlement balances to changes in the overnight rate and then to the desired change in the index of monetary conditions. As I noted earlier, this is the stage in the transmission mechanism that has tended to receive the least study, and our actions and intentions have not always been clearly understood in the financial sector.

To provide more transparency to its actions the Bank decided in the middle of last year to change its operating tactics in order to be more explicit about the range into which it wanted the one-day rate of interest to fall. Since that time, there has been a target range of 50 basis points for the one-day rate. The Bank has intervened actively through its operations in the money market to hold the one-day rate within the range and to make the limits of the range clear to the market. The target range is changed when economic or market conditions require it, but the use of such a target implies that changes would not typically be frequent. Nonetheless, there may be occasions, such as in January of this year, when market conditions necessitate a series of movements in the target range in a very short period of time. When the Bank decides to change the target range, the market learns of the change very quickly from the rates at which the Bank intervenes in the overnight market. By making the target range for the overnight rate explicit the Bank hopes to reduce the uncertainty about its intentions that sometimes has interfered with the transmission of monetary policy actions to interest rates further out along the yield curve and to the exchange rate.

More information on the Bank's operations

The final initiative of the Bank of Canada to reduce uncertainty about monetary policy that I want to mention is the provision of more public information on our monetary policy operations and on our interpretation of economic and financial developments. Many of you may already be familiar

with the published excerpts of the report on monetary policy provided to the Directors of the Bank at the regular meetings of the Board. These excerpts have been released since 1987. We have also included a discussion of monetary policy in each issue of the Bank's quarterly *Review* since early 1993.

We are about to supplement that information with a more detailed account of inflation developments and our conduct of monetary policy in a semi-annual *Monetary Policy Report*. This report will provide an account of our stewardship of monetary policy and will be useful for those who want to know more about monetary policy for their own decision-making. The first such report will be available in early May of this year.

Concluding Remarks

There are three important conclusions for monetary policy that I draw from this discussion of uncertainty and the monetary policy transmission process.

The first has to do with the role that monetary policy can play in the economy. The widespread existence of uncertainty makes it evident that monetary policy cannot be conducted in some sort of mechanistic way. But neither should one go to the other extreme and conclude that it is almost impossible to carry out a coherent policy in the face of all the uncertainty.

Because the effects of monetary policy are spread over time in a way that is not readily predictable, the conduct of monetary policy must have a stable, medium-term focus. That rules out trying to fine-tune the economy in such a way as to avoid cyclical swings in production and employment. In contrast, the goal of maintaining price stability over time is well suited to the monetary policy instrument. To put it another way, price stability is the contribution to the effective operation of the economy that monetary policy is capable of delivering.

My second conclusion has to do with the importance of financial markets and expectations about the future in those markets to the transmission of monetary policy. The description of the transmission process in this lecture does not correspond to the widely held view that the Bank of Canada controls the spectrum of interest rates in Canada. That view is a holdover from the days when financial markets here and elsewhere were subject to controls and restrictions of various sorts, and the pressures in markets tended to show up in limitations on the availability of funds rather than in interest rates. These days, markets are more open, more international and, as a result, much more efficient. But it does mean that interest rates are more

variable, and rates in Canada will move around in response to international events or domestic developments that alter market expectations.

However, this does not imply that the market controls interest rates and the Bank has no capacity to pursue a monetary policy geared to Canadian requirements. I would summarize my views as follows. The Bank has a direct effect on very short-term rates and through them an influence on the exchange rate. Our main effect on longer-term rates occurs indirectly through our influence on market expectations regarding inflation. These influences are sufficient for the Bank to carry out an independent monetary policy to control inflation. However, the clearer our commitment is to inflation control and price stability, the more effective our monetary policy will be.

That brings me to my third conclusion. In the uncertain world that I described in this lecture, subject to shocks and with financial markets more open and international than they used to be, it is important not only that the ultimate objective of monetary policy be clear but also that the implementation of policy be as transparent as possible. And that is why the initiatives by the Bank to provide more information that I have described involve every stage of the transmission process, from our operations to influence the one-day interest rate to our ultimate effect on inflation.

Information is, of course, useful only if it is credible. With respect to our commitment to the achievement and maintenance of price stability, credibility is something that must be earned through performance over time. But if you look at economic history, there can be no question that once a monetary policy geared to price stability gains credibility, the objective is easier to maintain and becomes a powerful force for sustained good economic performance.

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Those interested in pursuing some of the issues discussed in this lecture will find details in the background papers listed below. A selection of these, together with the lecture, are reprinted in the following document: Bank of Canada, The Transmission of Monetary Policy in Canada, *Ottawa: Bank of Canada, 1996.*

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The Canadian Experience with Targets for Inflation Control

The 1998 J. Douglas Gibson Lecture
Delivered at Queen's University, Kingston, Ontario,
15 October 1998

The Canadian Experience with Targets for Inflation Control

It is an honour to have been asked by the School of Policy Studies and the John Deutsch Institute to deliver the 1998 Gibson Lecture.

As an economist who worked as a banker for most of his career, Douglas Gibson brought an interesting perspective to public policy issues, to the relationship between government and business, and to the contribution of outside economists to government policies. I noted with particular interest a comment by Gibson in his 1981 essay in honour of John Deutsch. He points out that few academic economists in Canada up to that time "appeared to appreciate the destructive influence of inflation on the economy and on society."[1]

That comment provides a convenient link to my topic for this year's Gibson Lecture. What I propose to do is to reflect on Canada's experience using explicit targets aimed at low rates of inflation as the focus for conducting monetary policy.[2] But let me first set the scene by putting the inflation targets in the context of various approaches to monetary policy.

With the sharp rise in worldwide inflation in the 1970s, the costs of inflation became more and more evident. Consequently, central banks increasingly focused their attention on how to get inflation down and keep it down. One lesson that came out of this period was the importance of having some sort of "nominal anchor" to ensure that monetary policy does not lose sight of the objective of inflation control, given the long lags in the operation of monetary policy.[3]

The traditional nominal anchor for small countries has been a fixed exchange rate that links the currency of the small country to that of a larger trading partner that has been successful in controlling inflation. Among the larger countries, many central banks turned to monetary aggregates as an intermediate target for monetary policy around the mid-1970s as relatively high inflation became entrenched in the world economy. Subsequently, with inflation and inflation expectations persisting at uncomfortable levels in

1. Gibson (1981).
2. Broad assessments of the experience to date with inflation targeting in industrial countries can be found in Almeida and Goodhart (1998) and Bernanke et al. (1998). Individual country experiences can be found in Leiderman and Svensson (1995). For an assessment of the potential advantages and disadvantages of inflation targeting in developing countries, see Masson et al. (1997).
3. See Bouey (1982).

many countries during the 1980s, the policy innovation in the early 1990s was the introduction of explicit inflation-control targets in eight countries.[4]

The main factor that countries choosing to use explicit inflation-control targets have in common is a history of higher-than-average inflation. In some cases, they had previously used monetary aggregates and/or a fixed exchange rate without success or with only limited success. And, unlike countries with a history of relatively low inflation (such as the United States, Germany, and Japan), the history and consequent problems of policy credibility in inflation-targeting countries meant that they were unable to rely upon a general qualitative commitment to low inflation.

The key objectives of Canada's inflation targets, when they were originally announced in 1991, were to prevent inflation from accelerating in the short run in the face of the introduction of the new Goods and Services Tax (GST) and a sharp rise in oil prices and, in the longer run, to bring inflation down to a level consistent with price stability. Over time, the importance of other favourable characteristics of inflation targets as a permanent operating framework for monetary policy has become increasingly apparent to us at the Bank of Canada. The most notable of these characteristics are increased transparency, better accountability, improved internal decision-making, and a mechanism for responding to demand and supply shocks that reduces potential fluctuations in output.

I would not argue that explicit inflation targets are the only way to achieve good macroeconomic results. Indeed, the worldwide reduction of inflation in the 1990s across countries with different frameworks for monetary policy clearly indicates that there are a number of ways to achieve low inflation. Rather, I will argue that explicit inflation targets bring a discipline to monetary policy that is helpful in providing a more stable and predictable environment for the economic decisions of businesses and individuals. Moreover, I believe that the benefits of the clear operating framework provided by such targets will make them increasingly attractive in democratic societies that demand accountable public institutions.

I will begin this lecture with a brief history of inflation targets in Canada and go on to an assessment of the performance of the Canadian economy during the period in which inflation targets have been in place. I will then turn to a discussion of the favourable characteristics of inflation targets, over and above achieving a low rate of inflation. After examining the main criticisms of explicit targets for low inflation, I will offer some concluding remarks

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4. New Zealand, Canada, the United Kingdom, Sweden, Finland, Australia, Israel, and Spain adopted inflation targets in the first half of the 1990s.

about the contributions that the targets have made to the conduct of monetary policy in Canada over the last eight years.

A Brief History of Inflation Targets in Canada

In response to the persistence of high inflation during the 1970s, the Bank of Canada adopted a narrowly defined monetary aggregate (M1) as a target in 1975. When this aggregate became increasingly unreliable and turned out not to have been all that helpful in achieving the desired lessening of inflation pressures, it was eventually dropped as a target in 1982. Subsequently, the Bank embarked on a protracted empirical search for an alternative monetary aggregate target, but no aggregate was found that would be suitable as a formal target. Thus, from 1982 to 1991, monetary policy in Canada was carried out with price stability as the longer-term goal and inflation containment as the shorter-term goal, but without intermediate targets or a specified path to the longer-term objective.

In February 1991, explicit targets for reducing inflation were introduced through joint announcements by the Bank and the federal government.[5] These announcements confirmed price stability as the appropriate long-term objective for monetary policy in Canada and specified a target path to low inflation. The first guidepost was set for the end of 1992 at a target rate of 3 per cent for the 12-month increase in the consumer price index (CPI). This was to be followed by a reduction to 2.5 per cent for mid-1994 and to 2 per cent by the end of 1995. These targets had a band of plus and minus 1 percentage point around them. The announcements specified that after 1995 there would be further reductions of inflation until price stability was achieved.

At the time the targets were announced, there was upward pressure on prices in Canada from two major shocks—the sharp rise in oil prices following the Iraqi invasion of Kuwait and the effect on the price level of replacing the existing federal sales tax at the manufacturers' level by the broader-based GST. These shocks had led the Bank and the government to be concerned about a deterioration of inflation expectations and the possibility of additional ongoing upward pressure on wages and prices. The fact that Canada had recently gone through a period of inflationary pressure induced by excess demand added to those concerns. By providing a clear indication of the downward path for inflation over the medium term, the key near-term

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5. The government's announcement came as part of its annual budget, while the Bank issued a press release and a background note setting out practical details regarding the operation of the targets. A discussion of some of the practical issues surrounding the operational use of the targets can be found in Freedman (1995).

aim of the targets was to help firms and individuals see beyond these price shocks to the underlying downward trend of inflation at which monetary policy was aiming, and to take this into account in their economic decision-making.

In the longer term, the inflation-reduction targets were designed to make more concrete the commitment of the authorities to the goal of achieving and maintaining price stability. In addition, by providing information on the specific objectives to which the Bank's monetary policy actions would be directed, the targets were intended to make those actions more readily understandable to financial market participants and to the general public. In this way, the targets would provide a better basis than before for judging the performance of monetary policy.

In December 1993, on the occasion of the announcement of my appointment as Governor, the Bank and the Minister of Finance issued a joint statement on the objectives of monetary policy. In this statement, the newly elected government and the Bank recommitted themselves to price stability as the goal of monetary policy. It was also agreed that the 1 to 3 per cent target range for inflation would be extended through 1998, and that a decision on the definition of price stability would be postponed. There were two reasons for this extension. First, because it had been a long time since Canada had had low rates of inflation, it was felt that more experience in operating under such conditions would be helpful before a long-term objective was set. Second, since inflation had dropped rather dramatically and unexpectedly during 1991, it was unlikely that Canadians had completely adjusted to the improved inflation situation. More time was therefore needed to make that adjustment before announcing any further changes to the target.

In February 1998, the government and the Bank announced that the 1 to 3 per cent target range would be extended again, this time to the end of 2001. This extension reflected the fact that the economy had not yet reached full capacity in the current cyclical upswing. It would, therefore, be helpful to have the economy demonstrate more fully its ability to perform well under conditions of low inflation before determining the appropriate long-run target consistent with price stability. The government and the Bank now plan to determine this long-run target before the end of 2001.

Inflation Targets and Economic Performance in Canada

What did we expect in the way of economic performance from the inflation targets? First, we expected a lower rate of inflation and reduced inflation expectations. Second, the achievement of a lower inflation rate and the commitment embodied in the targets to maintain that lower inflation rate

were expected to result in lower interest rates. Third, with lower inflation, we anticipated that the economy would function more efficiently and without the sharp fluctuations caused by inflationary booms and subsequent recessions.[6]

What has the outcome been thus far?

Chart 1 shows the rate of inflation over the period of inflation targets. Following the initial announcement of the targets in February 1991 (when the 12-month rate of increase in the total CPI was at 6.8 per cent), inflation fell rapidly. Indeed, for much of 1992 it was below the bottom of the target range. Since then, with the exception of a brief period in 1995, the trend of inflation has been in the lower half of the target range.

The speed of the decline in inflation during 1991 was surprising. It reflected a much more severe economic slowdown than either the Bank or most other forecasters had expected. In part, the depth of the 1990–91 recession was due to international factors, such as lower-than-expected growth in the United States and an unexpectedly sharp decline in raw materials prices. But in Canada, it also reflected the unwinding of distortions in asset prices and debt accumulations associated with the preceding period of inflationary pressures.

It is unlikely that the 1991 announcement of the path for inflation reduction had a significant immediate impact on the expectations of individuals, businesses, or financial market participants. On balance, I think that it is the low realized trend rate of inflation in Canada since 1992 that has been the major factor in shifting expectations of inflation downwards. But the targets have probably played a role in convincing the public and the markets that the Bank would persevere in its commitment to maintain inflation at the low rates that had been achieved. Moreover, there are some recent indications that the 2 per cent midpoint of our target range is becoming an important anchor for current expectations and for long-range corporate planning.

If we examine interest rates and the growth of output and employment over the period of inflation targets, the first point to note is that the recovery from the 1990-91 recession was less vigorous than typical in the post-war period. The growth of domestic demand, in particular, was subdued until mid-1996 (see Chart 2). Moreover, the economic expansion in Canada was considerably less robust than that in the United States. While some observers have attributed the sluggishness of the recovery to the adoption of inflation targets and the associated conduct of monetary policy, this criticism

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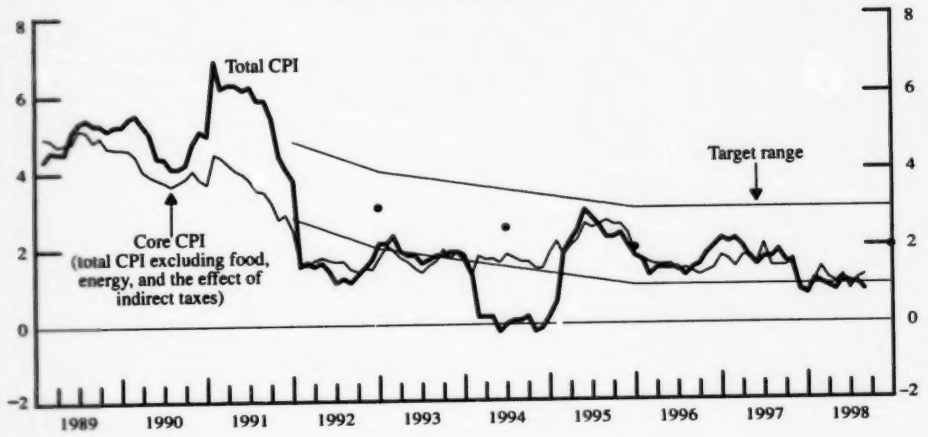
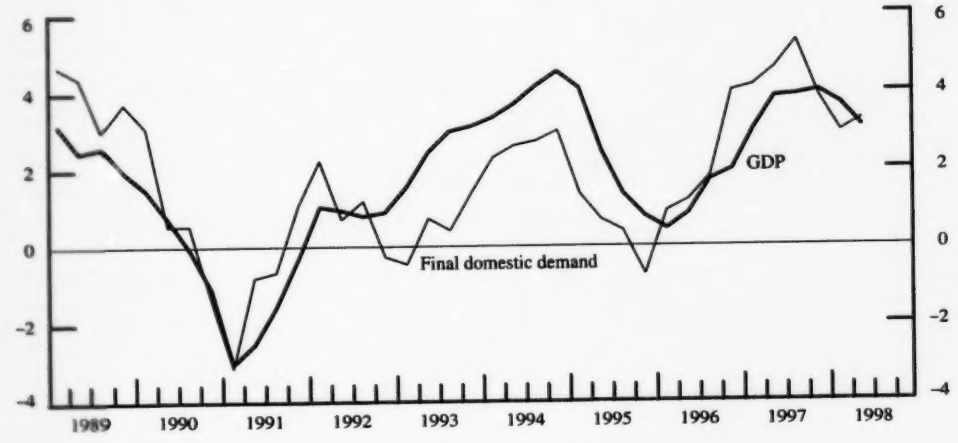
6. See Bank of Canada (1991) on the benefits of price stability.

Chart 1
Consumer Price Index in Canada
Monthly, year-over-year percentage change



* Midpoint of the inflation-control target range

Chart 2
Output and Final Domestic Demand in Canada
Volume, year-over-year percentage change



overlooks the major restructuring that took place in Canada in both the private and public sectors over this period.[7] Whereas the United States had undergone a period of intense private sector restructuring starting in the mid-1980s, the corresponding Canadian restructuring did not take place until the first half of the 1990s. At about the same time, after two decades of continuous fiscal deficits and public sector debt accumulation in Canada, unprecedented corrective actions were required to put public finances onto a sounder path.

Both sets of actions were essential to move Canada towards a better-functioning economy. The short-run consequences, however, included a weak employment situation and an associated lack of consumer confidence. And these resulted in sluggish domestic demand and a weaker-than-expected recovery in the Canadian economy.

Monetary conditions were easing through much of this period.[8] However, for quite a long time the Bank was unable to provide as much monetary stimulus as it would have liked because of fiscal, political, and international developments that, at times, caused financial markets to be nervous and volatile. It was only after 1995, with improved credibility on the fiscal front and subsequent to the Quebec referendum campaign, that the Bank was able to achieve a durable reduction in short-term interest rates. As the credibility of both monetary and fiscal policy improved, Canadian interest rates across the maturity spectrum moved to levels below comparable interest rates in the United States. In response to easier monetary conditions, domestic demand in Canada recovered, with a strong expansion beginning in mid-1996 and continuing through 1997.

One of the main conclusions that I would draw from the Canadian experience of the 1990s is that, while low inflation is necessary for good economic performance, it is not sufficient by itself. While monetary policy was able to achieve a rate of inflation that was within the target range for most of the period, other factors also played an important role in determining interest rate movements and output and employment growth.

Does the important role played by non-monetary factors mean that the inflation targets and the low rate of inflation were not helpful? Not at all. The ability of businesses to undertake a major restructuring was greatly enhanced by the stable low-inflation environment. And while fiscal and

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7. This critique of Bank policy can be found in Fortin (1996). A detailed response can be found in Freedman and Macklem (1998).

8. The concept of monetary conditions includes movements in short-term interest rates and in the exchange rate, the two channels through which monetary policy operates. See Freedman (1994) and Thiessen (1995).

political uncertainty resulted in appreciable financial market volatility, as well as vulnerability to external shocks in the period before 1996,[9] I believe that the situation would have been considerably worse without the anchor provided by low inflation and the inflation targets. And, in conjunction with improved fiscal policy, they have facilitated better economic performance in the more recent period and have allowed us to weather the current international financial problems with fewer difficulties than before. Targets should continue to provide a sound foundation for good economic performance and for coping with the international shocks that are bound to hit us from time to time.

Increased Monetary Policy Transparency and Accountability

When the government and the Bank agreed on the initial targets in 1991, the main concern was to lay out a path for the reduction of inflation on the way to price stability. Despite the emphasis that the Bank had for some years placed on price stability as the objective of monetary policy,[10] the period over which the objective was to be achieved was a source of uncertainty among the public. Thus, one of the key benefits of the targets was expected to be increased transparency with respect to the objective of monetary policy, leading to a reduction of public and financial market uncertainty.

The announcement in 1991 also noted that the targets should provide a better basis for judging the performance of monetary policy. Criticisms of monetary policy had often implicitly assumed that the Bank should be pursuing policy objectives other than price stability. By setting out a clear objective, and with the commitment of the government to that objective, the Bank hoped that future public assessments of monetary policy performance would focus more clearly on its record of achieving price stability.

There is no question that explicit targets for inflation control make the objective of monetary policy more transparent and provide a better basis than before for holding the central bank accountable for its conduct of monetary policy. I have not tried to pull together evidence that, with a clearer objective, public commentary on monetary policy since 1991 has involved fairer assessments of the performance of the Bank of Canada. And it is difficult to demonstrate conclusively that, overall, financial and economic uncertainty in Canada have been less than they would have been

9. Clinton and Zelmer (1997).
10. See Bank of Canada (1987) and Crow (1988).

without targets. Nonetheless, it is my qualitative assessment that those improvements have taken place.

And the targets have certainly had a major impact on the Bank itself.

With respect to transparency, we found that explicit targets provided a strong incentive that encouraged us to become more forthcoming about how we would operate to achieve those targets. As I have discussed elsewhere,[11] we have taken initiatives to explain more fully our assessment of economic developments and our outlook for output and inflation. We have clarified how we make judgments about the actions needed to achieve the inflation target, and how we operate in markets to implement those judgments.

Moreover, the Bank's senior staff now spends much more time than before on public explanations and discussions across the country about monetary policy and central bank operations.

All these initiatives were designed to make the implementation of monetary policy and the achievement of the targets more effective.

Explanations and discussions are also part of the process whereby the Bank accounts to the public for its actions. Accountability implies that the central bank must either achieve the target or explain what unanticipated events caused it to miss the target and what it is doing to rectify the situation. Thus, we have a strong incentive to ensure that the public is well informed about the circumstances that could affect our achievement of the objective.

It is not surprising that in some countries inflation targets and increased autonomy for the central bank have gone hand in hand. An autonomous central bank has traditionally fitted somewhat awkwardly in a democratic society.[12] However, once targets are set and the central bank is charged with achieving those targets, it is much more feasible for Parliament and the public to hold the managers of monetary policy to account for their performance.

In Canada, no new arrangements for central bank accountability have been put in place since 1991. But in fact the existing arrangements have adapted quite well to an inflation-targeting environment. The Bank of Canada Act gives the Bank's Board of Directors the responsibility for ensuring that the institution is well run.[13] This includes assessing the performance of the

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11. Thiessen (1995).
12. See Rasminsky (1966).
13. The directors of the Bank are appointed by the government for three-year terms. By tradition, there are two directors from Ontario, two from Quebec, and one from each of the other provinces.

Governor and of the other members of the Governing Council, who are responsible for managing the Bank.[14]

The inflation targets have made those performance assessments more straightforward. When it comes to monetary policy—the Bank's most important responsibility—there is now a clear measure of what constitutes successful performance.

The second part of the accountability arrangement for the Bank of Canada is the directive power given to the Minister of Finance under Section 14 of the Bank of Canada Act. With the new practice of agreed targets between the Bank and the Minister, the directive power, which has never been used, now seems even less likely to be used. Nonetheless, if there were a fundamental disagreement on the targets when they came up for renewal, the Minister could impose his will via a directive. That would likely lead to the Governor's resignation and a new Governor, who was prepared to accept the desired targets, would have to be chosen.[15]

As long as no directive is in force, the Bank must take full responsibility for its monetary policy actions. However, this directive power implies that the Minister must also take a broad, ultimate responsibility because he has the power to change monetary policy. Quite evidently, this is a power to be used only in extreme circumstances. Nevertheless, this arrangement defines the nature of the Bank's relationship to the Minister of Finance in the area of monetary policy.

In today's world, the accountability of public institutions goes beyond traditional legislated arrangements. In democratic societies, the general public now demands much more information and an accounting of performance from public institutions. Here again, by establishing a clear performance objective, the inflation-control targets have made it easier for the Bank to account for its stewardship to Parliament and the general public.

Improved Internal Decision-Making

The explicit target for policy and the associated increase in transparency and accountability of the Bank of Canada have also had an impact on our internal decision-making processes.

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14. The Governing Council is composed of the Governor, the Senior Deputy Governor, and the four Deputy Governors.

15. In addition, if the Minister decided that the actions that the Bank was taking to achieve the agreed targets were inappropriate, he could use the directive power. Once again, this would be an expression of non-confidence, which would probably lead to the Governor's resignation and replacement.

Other central banks that have adopted inflation targets have also noted the improvement in the process of internal decision-making that has resulted.[16] The improved decision-making can be attributed largely to the focus on a clear objective and the consequent need to develop a robust framework that maximizes the likelihood of realizing that objective in the light of the long lags between monetary policy actions and their effects on inflation.

The inflation-targeting framework typically has a number of components—a procedure for projecting the future rate of inflation, a set of quantitative estimates of the relationships that link the central bank actions and the rate of inflation, and the development of information variables that provide early warning to the authorities that economic and financial events are, or are not, proceeding in line with the inflation outlook.

In Canada, the policy process works as follows. The Bank makes a projection of inflation one to two years ahead. This is based in large part on our assessment of international and domestic economic developments and their implications for the path of real output in the Canadian economy relative to potential output. In this framework, minimizing the difference between the projected rate of inflation six to eight quarters in the future and the target rate becomes the effective intermediate objective for monetary policy.[17] A full projection is undertaken every quarter, reassessed mid-quarter, and carefully monitored in between. The idea is to re-examine the scenarios on which policy actions are based as new information becomes available. In this context, I would note that we are very aware of the uncertainty surrounding both the projection and the transmission mechanism that links our actions to demand and inflation.[18]

While it is still early to offer any definitive judgments, I would suggest that so far one of the most important results of the targets has been an increase in the internal discipline of the policy-making process. The Bank's commitment to the targets and the need to explain and justify any inability to meet the targets have resulted in a better-focused internal debate on the appropriate policy actions to take and has probably reduced the likelihood that decisions to take such actions will be put off.

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16. Haldane (1995).
17. Svensson (1997).
18. For a detailed discussion of the Canadian framework for making policy, see Duguay and Poloz (1994) or Longworth and Freedman (1995). See Haldane (1995) for descriptions of the policy frameworks of those countries using inflation targeting as the basis of their policy. For a discussion of the uncertainty surrounding the transmission mechanism, see Thiessen (1995).

The Response to Demand and Supply Shocks Under Inflation Targeting

In addition to their positive effects on transparency, accountability, and decision-making, the inflation targets also provide a mechanism that helps monetary policy to deal with demand and supply shocks in a way that reduces economic fluctuations.

If the inflation forecast suggested that aggregate demand was expanding at an unsustainable rate and would be pressing on capacity so that the trend of inflation would likely go through the top of the target range, the Bank would tighten monetary conditions to offset the demand and inflationary pressures. Conversely, if demand was weak relative to capacity and the trend of inflation looked likely to move below the bottom of the range, the Bank would ease monetary conditions, thereby providing stimulus to the economy and reducing the downward pressure on inflation. By operating in this way, the Bank effectively reduces the magnitude of the fluctuations in real output and income that are inherent in a market-based economy. Because of this economic-stabilizer characteristic of targets in response to demand shocks, and the helpful role of the top and bottom of the range in communicating the way in which the Bank responds to such shocks, the Bank has recently been giving more emphasis to the target range than was the case initially.

Moreover, to the extent that explicit targets and their successful achievement give Canadian monetary policy more credibility, the Bank of Canada has more potential room for manoeuvre in dealing with demand shocks. For example, following an upward demand shock, policy credibility can give the Bank more room to see how large and how long-lived the shock is likely to be and how much pressure it seems to be putting on the economy's capacity to produce. The Bank will have this greater latitude only insofar as inflation expectations are more firmly anchored by the targets and are not dislodged by a delay in responding to a shock.[19]

Inflation targets have also turned out to be helpful in dealing with certain types of supply shocks. For temporary shocks to food and energy prices, our operational focus on a core rate of inflation (the CPI excluding food, energy, and the effect of changes in indirect taxes) makes it clear that the focus of monetary policy is on the trend of inflation and not on such temporary fluctuations.

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19. See Freedman (1996). The ability of the U.S. monetary authorities to adopt a wait-and-see position in response to shocks in recent years is closely related to the very high degree of credibility that the Federal Reserve has achieved.

Removing indirect taxes from our core measure of inflation implies that the Bank will accommodate first-round effects of tax changes on the price level. However, we have also made it clear that we would not accommodate any ongoing inflation effects that might come from attempts to adjust salaries and wages to seek compensation for tax increases.

Another type of supply shock that may become relevant in the period ahead is the possibility that the widespread restructuring that we have seen in the Canadian economy, along with new technology and high levels of business investment, will lead to growth rates and levels of potential output higher than currently estimated on the basis of past experience. In such an event, the economy will be able to expand faster and operate at higher levels of output than previously thought without generating inflation pressures.

A credible inflation target can help the Bank probe to find out where the limits of potential output really are. Consider a case where inflation remains under downward pressure even as the economy operates at levels of activity that the Bank believes to be consistent with full capacity. The risk of having inflation go below the target, and the accountability issues that this would raise, should ensure that the Bank will not make persistent errors in underestimating potential output.[20]

This operational framework should help to make clear to Canadians that a monetary policy focused on inflation targets does not ignore fluctuations in employment and output, or result in a persistently underperforming economy.

Some Criticisms of Targeting on Low Inflation

Let me now turn to the main criticisms that have been levelled at the Bank's targets for low inflation. They are: the possibility of downward rigidity in nominal wages; the floor of zero on nominal interest rates; and a concern about deflation. You will note that none of these criticisms is directed at inflation targeting as such, but at the choice of a target for inflation control that is very low.

Wage rigidity

Are wages rigid to the degree that they would be slow to decline even in the face of slack in the labour market? And what are the implications of such a situation for the working of the economy and for monetary policy? In other

20. Thiessen (1997).

words, is some level of inflation needed to "grease the wheels" of the economy and eliminate the potential effect of such rigidity?[21]

The evidence thus far, although still fragmentary, suggests that wages can and do decline.[22] It is also worth emphasizing that with positive productivity growth, the average wage will normally rise over time even in an environment of stable prices. In such circumstances, unchanged nominal wages will enable a decline in unit labour costs equal to the rate of productivity growth, if such a decline is needed.

Furthermore, the resistance to downward adjustments of nominal wages that built up during the period of high inflation is likely to lessen as the public becomes accustomed to low inflation. Given that the behaviour of nominal wages adjusted to the period of high inflation starting in the 1970s, I see no reason why it will not adjust equally to the current period of low inflation. Indeed, there is now some evidence, in Canada and in other low-inflation countries, of an increase in the relative importance of variable pay schemes (bonuses, etc.) as opposed to increases in base wage rates.[23] If sustained, this development would help to increase wage flexibility.

As I have said in the past, I have a great deal of difficulty with the idea that wage earners in Canada are subject to a permanent money illusion that can, and should, be exploited by the monetary authority.[24]

How can monetary policy be eased when inflation is very low and interest rates are close to zero?

One of the criticisms of the goal of price stability, or a very low inflation rate, is that it rules out using negative real interest rates (i.e., interest rates lower than the rate of inflation) to provide stimulus to the economy should this become necessary. This line of argument implies that one should avoid targeting a very low rate of inflation because of the added flexibility that the possibility of having negative real interest rates gives to policy-makers at a time of economic weakness.

In assessing this criticism, it is important to remember that the achievement of price stability is likely to lead to a lessening in the amplitude of business cycle fluctuations. In the post-war period, deep recessions (of the sort that might, in extreme cases, call for negative real rates) have typically been preceded by periods of strong inflation pressures. These pressures resulted

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21. See Fortin (1996) and Akerlof et al. (1996).
22. See Crawford and Harrison (1998).
23. Crawford and Harrison (1998).
24. See Thiessen (1996-97).

in significant economic distortions, which, in turn, affected the depth of the subsequent downturn. In the absence of such inflationary distortions, the downturns are likely to be much milder. Hence, there is less likelihood that a period of negative real interest rates would ever be called for.

Moreover, while nominal short-term interest rates cannot be less than zero, it is worth underlining that a near-zero nominal rate will still imply a real interest rate that is appreciably below its equilibrium value and will provide considerable stimulus to the economy.

Finally, in a small open economy with a flexible exchange rate regime, monetary conditions can become easier as a result of both interest rate and exchange rate movements. Even if there were only limited easing possible via the interest rate, there could still be a sufficient adjustment of monetary conditions to support a recovery and avoid having inflation persistently below the target range.

Is there a "deflation" problem?

Some critics have suggested that targeting a low inflation rate, such as the present 1 to 3 per cent range, raises the potential problem that a negative shock could readily push Canada into deflation.

The first point to clarify is that what is relevant here is a decline in the general level of prices of goods and services, not in asset prices as some people seem to think. Furthermore, the use of the term "deflation" to describe a small decrease in prices for a short period of time, rather than a period of sustained price declines, can be very misleading. In Canada, the term deflation is associated in the public mind with the depression of the 1930s, when prices fell more than 20 per cent over a four-year period.

The concerns about persistent deflation are that households will decide to defer consumption expenditures in the expectation that prices will be significantly lower in the future than at present and that the economy will enter into a debt-deflation spiral. Such responses are highly unlikely in the case of small price declines over short periods of time. The fact that under inflation targeting the authorities are committed to bringing the rate of change in prices back inside the target range would reduce even further the likelihood that deflationary expectations would take hold in such circumstances.

I would contend that inflation and deflation are equally to be avoided. Both imply increased uncertainty for economic agents, and both have negative implications for economic performance. That is why the Bank treats the risk

of inflation moving above the top or below the bottom of the range with equal concern.

Concluding Remarks

It is too early to be able to draw very strong conclusions about the impact of inflation targets on actual economic performance in Canada. We really do require a longer period of time for targets to demonstrate their ability to deal successfully with the peak of an economic upturn without the trend of inflation moving persistently outside the target range.

Nonetheless, some conclusions can be drawn at this point. In Canada, inflation has remained within the target range for most of the period in which targets have been set. Because of this, the outlook for inflation has, in recent years, been more stable and predictable than at any time since the 1960s. And, consequently, most nominal interest rates have been lower than at any time since the 1960s.

It would appear that business investment in Canada has been encouraged by the low interest rates and stable inflation outlook.

Among individuals, stable inflation has encouraged both savers and borrowers to move further out along the maturity curve. This provides greater security for these individuals—a benefit that is particularly important for those who are not expert in, or do not wish to devote a great deal of time and energy to, financial matters.

A common criticism of inflation targets in Canada is that the United States has managed to achieve better output and employment performance since 1991, with an inflation rate that is currently only one percentage point higher than in Canada.

However, as I have argued in this lecture, there have been a number of factors at work that account for differences in economic performance between Canada and the United States, of which the most important probably were fiscal policy and the resulting higher public debt levels in Canada.

I would add that monetary policy credibility has been less of a problem in the United States than in Canada. To an important extent, this reflects the somewhat lower average U.S. inflation rate from the early 1970s to the beginning of the 1990s. It also reflects the fact that the U.S. dollar is the major international reserve currency, and for that reason there is strong ongoing demand to hold U.S. dollar-denominated assets that does not exist for Canadian-dollar assets. In these circumstances, the commitment

provided by inflation-control targets will be far more useful in attracting and holding investors to a relatively small, open economy like Canada's than to the United States.

However, I would argue that the transparency and accountability of monetary policy and the resulting discipline on central bank decision-making that the targets encourage would be good for any country. And the greater predictability of the inflation outlook under a targeting regime should contribute to good long-term economic performance everywhere. Moreover, the automatic-stabilizer feature of targets should reassure those who worry that the central bank is overly concerned about inflation to the exclusion of the real economy.

Finally, I would argue that transparency and accountability give autonomous central banks legitimacy in a democratic society. Since I am persuaded that central bank autonomy provides the strongest guarantee of having a low-inflation monetary policy over time, I believe that it is important to ensure that such autonomy remains acceptable in democratic societies. Only with explicit performance targets will accountability arrangements be truly effective.

Inflation-control targets are by no means a miracle solution for monetary policy. But I believe that they provide a framework that leads to better policy decisions, better economic performance over time, and a more accountable, and therefore more sustainable, position for autonomous central banks.

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Then and Now: The Change in Views on the Role of Monetary Policy since the Porter Commission

The Tony Hampson Memorial Lecture
Delivered at the C.D. Howe Institute, Toronto, Ontario,
11 March 1999

Then and Now: The Change in Views on the Role of Monetary Policy since the Porter Commission

Tony Hampson and the Porter Commission

Tony Hampson made a number of outstanding contributions to Canadian public life as well as having a successful business career. Many in this audience will be familiar with the fact that for a number of years he was Chairman of the C.D. Howe Institute's Policy Analysis Committee. Early in his career, he worked on the Royal Commission on Canada's Economic Prospects (the Gordon Commission) and, most prominently, served as secretary of the Royal Commission on Banking and Finance (the Porter Commission).

His colleagues, on these Commissions as elsewhere, remember an engaging personality, an ambitious and demanding manager, a clear-headed analyst, and a thorough and helpful editor. He was also a superb communicator and writer. Let me quote the acknowledgement in the Porter Report: "Our greatest debt has been to Mr. H. A. Hampson, the Secretary of the Commission. His intellect, organizing ability and energy proved invaluable in the planning of our work, the development of our views and the drafting of our entire report."[1]

The hearings and analysis undertaken in the early 1960s by the Porter Commission, together with its Report and the discussions it generated, were events of major importance for the Canadian financial system and for the Bank of Canada. Indeed, I will suggest in this lecture that the Porter Report contained the seeds of a major reorientation of thinking about financial structure and monetary policy. Its emphasis on competition, and on the use of market mechanisms in the implementation of monetary policy, clearly showed the way ahead. It also foresaw many of the subsequent changes in financial institutions and markets. Moreover, the Commission underlined the necessity for inflation control at a time when the view that inflation could be traded off for lower unemployment was gaining in popularity.

The Commissioners themselves, chaired by Chief Justice of Ontario Dana Porter, were people of experience and insight. They assembled an extraordinarily talented young research staff, and Tony Hampson proved to be an admirable team leader.

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1. Porter Commission Report, p. 572.

The Commission believed in markets. This was not such a popular stance at the time. Extensive government controls, a legacy of the post–World War Two period, were still in place in many advanced economies, and they were widely thought to be necessary, if not desirable. In contrast, the Porter Commission felt that the somewhat more liberal financial regime in Canada was by and large working effectively. The financial system had played a central role in the post-war expansion, especially in the smooth financing of the tremendous wave of investment in the 1950s. Moreover, at the time it was undergoing considerable change, in response to the evolving demands in the financial markets of households, firms, and governments. On the basis of this encouraging experience, the Porter Report came out strongly in favour of increased competition and deregulation. It was aware that this might entail some risks, but thought they were worth taking.

This advice was followed in the revisions to federal financial legislation of 1967, notably in the following measures:[2] removal of the 6 per cent ceiling on bank loan rates; permission for banks to enter conventional (i.e., non-government-insured) mortgage lending; prohibition of interbank agreements on interest rates and of interlocking directorates; and the reduction of the burden of cash reserve requirements on chartered bank deposits.

These measures have stood the test of time and have served Canada well. For example, the liberalization of interest rates allowed financial institutions to adapt appropriately to the requirements of the more volatile financial environment of the decades that followed. Canada was spared the systemic weaknesses caused elsewhere by ceilings on administered interest rates. In the United States, for example, such ceilings were a major factor encouraging the unbalanced portfolios of the thrift institutions, which in the 1980s would be revealed as a fatal flaw.

In more philosophical terms, Porter's arguments on financial liberalization and competition were ahead of their time, and still read very well today.

I cite all this to underline that the Porter Commission made an important difference to our financial landscape. But financial reform, important and topical though it may be, is not the central theme of my lecture. Instead, I will focus on the Commission's work on the conduct of monetary policy. First, I will set out a broad characterization of the view of monetary policy in the Porter Report. I have not tried to provide a thorough description of the

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2. The main revisions were to the Bank Act and the Bank of Canada Act. While the Commission had recommended a comprehensive definition of banking, the legislation did not go so far as to eliminate distinctions between different kinds of financial institutions. Moreover, the Commission was against government-backed deposit insurance, which was nevertheless enacted in 1967, following a run on a trust company.

Commission's analysis of monetary policy. Rather, I have focused on a few general policy issues that strike me as important. Next, I will present the general approach to policy that is taken today. Comparison of the two, you will see, reveals some striking differences, but also some common themes. These themes lead me to the view that the Porter Commission Report and the surrounding debate were a key step in the evolution towards the current monetary policy framework in Canada.[3]

The Porter Commission View of Monetary Policy

The basic framework

The Porter Report in most respects adopted a standard 1960s view of monetary policy. It was the heyday of Keynesianism, in official circles as well as in the universities. Although Milton Friedman and his collaborators had begun their restoration of the quantity theory with some impressive, if controversial, empirical work,[4] theirs was very much a minority view in the early 1960s.

There were four key tenets in the standard view of monetary policy at the time.[5]

First, monetary policy was seen as just one element of macroeconomic policy, which in its entirety has multiple objectives (high employment and output, low inflation, rapid economic growth, external balance, etc.). And it was argued that monetary, fiscal, and debt-management policies should be coordinated in pursuit of these objectives. These propositions reflected a strong focus on the short run. While there is no doubt that monetary policy and fiscal policy both affect real variables in the short run, it was less clear at the time that the effects of monetary policy on the demand for goods and services did not extend into the longer run. Given its short time horizon, it

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3. The Commission also dealt with the issue of central bank governance. It recommended formalizing the agreement on dual government-Bank of Canada responsibility that Louis Rasminsky had drawn up before accepting his appointment as Governor. In consequence, the Bank of Canada Act was amended in 1967 to provide the Minister of Finance with the right to issue a directive to the Bank if the government disapproved of the Bank's policy. Thus, the government is ultimately responsible for monetary policy, but if no directive is issued the Bank has full responsibility for designing and implementing monetary policy.

4. See, for example, Friedman (1956).

5. These ideas were also to be found in similar inquiries of that time in the United Kingdom (the Radcliffe Report) and in the United States (the Commission on Money and Credit). However, there were some differences in the argumentation of the three reports. For example, Radcliffe was most interventionist while Porter was the strongest advocate of market mechanisms.

was not surprising that macroeconomic analysis in the 1960s focused on stabilizing output and employment.

Second, monetary policy on its own was viewed as not very effective. Large movements in credit conditions or interest rates might in theory have a large economic impact, but they had to be avoided because of harmful side effects (instrument instability, financial instability, balance of payments repercussions, etc.). The changes in credit conditions that were feasible had a comparatively limited effect.

Third, the credit channel was thought to be the main source of impact of monetary policy on the economy. Conventional monetary policy instruments (open-market operations, bank reserve management, and Bank Rate changes) were said to affect credit flows by changing the liquidity positions of financial institutions. This credit channel embodied the effects of both the availability and the cost of borrowing. However, its overall influence was complex and typically slow; and the impact of an easing of credit was considered to be especially weak—"you can't push on a string."[6]

Fourth, a need was seen for moral suasion or formal controls on lending in difficult short-run situations, such as balance-of-payments crises. The Commission recognized the defects of such measures: arbitrary discrimination, economic distortions, and eroding effectiveness over time. However, the general view at the time was that such controls were helpful when quick effects were urgently needed.

The relationship between inflation and economic activity

In 1958, A.W. Phillips published the analysis of the relationship between wage increases and unemployment in the United Kingdom that now bears his name, and researchers in the United States soon found a similar relationship.[7] By the early 1960s macroeconomists were regarding the Phillips curve as a description of a *policy trade-off* between inflation and unemployment. By accepting more inflation, it seemed possible to reach a higher level of output. A seminal study of the policy implications of the Phillips curve was in a Royal Commission Working Paper by Grant Reuber.[8] The Porter Commission accepted this line of reasoning and argued that a balance had to be struck between the goals of price stability and maximizing output and that neither should be pursued to the exclusion of the other.

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6. Porter Commission Report, p. 434.
7. Phillips (1958), Samuelson and Solow (1960).
8. See Reuber (1962, 1964).

At the same time, however, the Commission was aware that inflation could have very negative longer-run consequences for the economy. "The objective of stable prices . . . , while desirable for its own sake, is also important as a means to a wider end . . . . rising prices can weaken real economic growth by undermining the system of fixed value contracts on which efficient business is founded, by generating a fear of long-term saving and lending commitments, and by diverting real resources into unproductive and inefficient channels . . . ."[9]

In a similar vein, the Report rejected the argument for mild inflation to lubricate real wage adjustment, after noting that productivity was increasing at 2 per cent a year, so that a considerable degree of adjustment was possible without real wage declines, and that measures to increase market flexibility were a better solution. The Report also described inflation as acting "like a drug whose dose must be continually increased to get the same effect: if the authorities permitted the economy to become addicted, the inevitable return to reality would bring about very painful withdrawal adjustments."[10]

These passages were prescient in the light of what was to happen over the next 20 years. However, the Report struggled to reconcile its advocacy of multiple targets with its vivid warnings about inflation. The tension between the two, we can now see, stemmed largely from a lack of clarity about relevant time horizons. The multiple-targets approach to monetary policy focused on the short-run trade-off between inflation and unemployment. It did not recognize that this trade-off disappears over time as inflation expectations adjust to changes in the rate of inflation. The idea of a vertical long-run Phillips curve, which was implied by the adjustment of inflation expectations, was developed only later in the decade.[11] At the same time, the Report did recognize the likely damage that inflation could cause in the longer run to the productive capacity of the economy.

In the end, the Report did not recommend the firm guideline for monetary policy that its spirited advocacy of price stability would, in retrospect, seem to have justified.[12] Despite this ambivalence, the Commission was more far-

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9. Porter Commission Report, pp. 399-400.
10. Porter Commission Report, p. 419.
11. The main authors were Milton Friedman (1968) and Edmund Phelps (1967).
12. The Submissions of the Bank of Canada also pointed to the importance of restraining inflation (II, paragraph 59): "Central banks feel a particular obligation for seeing that in the consideration given to the proper 'mix' of public policies adequate emphasis is at all times placed on price stability . . . being in a position to exercise an influence on the volume of money, they must inevitably be concerned with its value."

sighted in its concerns about inflation than the consensus of economists of the day, which was that the Bank of Canada had been investing too much in fighting inflation.[13]

The scope for monetary policy under a fixed exchange rate

Canada had been on a floating exchange rate regime when the Porter Commission was appointed in October 1961, but the government adopted a fixed exchange rate in May 1962. Given the degree of asset substitutability between Canada and the United States, Canadian interest rates were thereafter tightly constrained by the objective of maintaining the dollar at the parity of 92.5 U.S. cents.[14]

With respect to longer-run policy objectives, as we know today, the fixed exchange rate implied that monetary policy in Canada would be mainly determined in the United States. However, the prevailing opinion among economists, reflected in the Porter Report, was that Canadian monetary policy could nevertheless serve a constructive short-run purpose with respect to the range of macroeconomic policy objectives, as long as the currency was fixed at a reasonable value and the government had an adequate reserve of foreign exchange.

At the time, most policy-oriented economists did not draw the sharp distinction we now do between fixed and floating exchange rate regimes. To understand this, we have to recognize three factors. First, under Canada's floating exchange rate regime of the 1950s—which was the only post-war experience in the industrialized world to go by—variations in the exchange rate had been quite modest, as had the movements in Canada-U.S. interest rate differentials. That is, in practice, the float did not appear to be very different from a fixed-rate regime. Second, with their focus on short-run output and employment, policy-makers tended to neglect the possible inconsistency between the objective for domestic inflation and the fixed exchange rate. Third, the theory of monetary policy in an open economy was in a fairly rudimentary state.[15] The severe constraints that a fixed exchange rate imposes even on short-run monetary policy choices in a world of high asset substitutability were not fully appreciated at the time.

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13. In part these views stemmed from theories of inflation that emphasized non-monetary factors, e.g., cost push, union or seller power, demand shift, struggle for income, and so on.
14. Exchange controls had been eliminated in the early 1950s. The Canadian dollar would remain fixed until June 1970.
15. Robert Mundell was at that very time making the contributions that would form the standard modern model for open-economy policy analysis. See Mundell (1961, 1962, and 1963).

In the case where a conflict might materialize between domestic objectives and the fixed exchange rate for the dollar, the Commission recommended that domestic considerations should prevail, and that the exchange rate parity be allowed to change. But it did not reopen the debate over the exchange rate, which had been a topic of heated political controversy earlier in the decade. By 1964, at the time the Report was published, the view of the Canadian authorities was very much that the fixed exchange rate system was appropriate, and that the existing parity was in the right range.

Monetary policy instruments and the transmission mechanism

Both the Porter Commission and the Bank in its submissions described the transmission of monetary policy actions in terms of their effects on credit conditions. By credit conditions they meant "the whole range of terms and conditions affecting borrowing and lending and the purchase and sale of financial assets."[16] This would include, most importantly, interest rates, but also standards of creditworthiness, collateral, repayment periods, and other terms and conditions.

In general, whereas the Bank of Canada[17] stressed the importance of availability effects, the Porter Report was more inclined to give a central place to interest rates. One of the reasons why the Bank of Canada put so much emphasis on credit availability at that time was because, even apart from the 6 per cent bank loan rate ceiling, it believed that wide fluctuations in interest rates were not feasible. Indeed, historical experience was of a quite narrow range of interest rate movements. For example, the prime lending rate of the chartered banks, a key rate in the transmission mechanism, had never been lower than 4.5 per cent, while the maximum legal rate was 6 per cent—a range of 150 basis points. There simply had not been much scope for borrowing costs to vary.

As outlined by the Commission and the Bank, there were a number of possible reasons for this belief that wider movements in interest rates were not feasible: the possibility of instrument instability (with interest rates swinging abruptly), the potential effect of sharp changes in security prices on the stability of financial institutions, adverse public opinion, and the external constraint posed by the fixed exchange rate. While the Commission agreed with some of these concerns, it nonetheless argued that such considerations should not stand in the way of a vigorous monetary policy.

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16. Bank of Canada Submissions, II, para. 11.
17. Bank of Canada Submissions, II, paras. 13 and 14.

The Porter Report accepted, however, the description put forward by the Bank of Canada of the way that monetary policy affected the operation of chartered banks. The provision of cash reserves by the Bank of Canada would bring about changes in chartered bank holdings of liquid assets, which over time would affect the banks' willingness to make loans. However, when quick results were deemed necessary, the Bank felt that resort to direct limits on bank lending would be justified. On the several occasions that moral suasion had been employed in the 1950s, it had seemed to work. The Commission showed little enthusiasm for such intervention. It argued that controls impaired market efficiency, were discriminatory, and were of diminishing effectiveness over time. There was also a concern about their clumsiness, especially the delays in making instructions effective in bank branches across the country, and possible misinterpretation of their eventual withdrawal.

Despite all that was said and done about the credit conditions approach to monetary policy, empirically any significant effects seem to have been confined to a few brief periods of moral suasion and the impact on residential construction of the lags in changing the administered NHA mortgage rate and the interaction between this rate and the 6 per cent bank lending rate ceiling. The available empirical evidence did not indicate that changes in credit conditions systematically had much effect on aggregate demand. Econometric tests reported in the Commission's working papers show no significant effects on consumption and investment spending from interest rate or credit variables.[18] This seems to have been because monetary policy actions had not been very aggressive.

These results confirmed the conventional belief that ordinary monetary policy actions were not very effective. And this was a major reason for the insistence on policy packages with the right mix of fiscal and monetary policy, plus coordinated debt-management policy, and on the possible need for moral suasion and/or some sort of direct controls on bank lending.

The role of debt management

I have noted that the package of macroeconomic policies advocated during the 1960s tended to include debt-management policy along with fiscal and monetary policies. Certainly, central bankers of the day regarded debt-management policy as an integral part of macroeconomic policy. The Porter Report had some sympathy with this notion. There were three discernible lines of thinking here.

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18. Johnson and Winder (1962) and Reuber (1962).

First, monetary policy is itself a kind of debt management with an open-market operation switching one public sector liability (central bank deposits) for another (e.g., treasury bills). Second, changes in relative supplies of debt could affect the liquidity of the banks and hence their willingness to lend. Third, debt management might directly alter the term structure of interest rates.

These notions may have had greater plausibility at the time, when there were some indications of segmented markets. But over time, market segmentation diminished in importance as both lenders and borrowers became increasingly willing to adjust the maturity of their commitments in response to interest rate differences across the term structure. Moreover, in the years following the publication of the Porter Report, evidence accumulated supporting the expectations theory of the term structure of interest rates. According to this theory, long-term rates are the average expected value of future short-term rates, plus a liquidity-risk premium. Although in principle the latter could vary systematically as the composition of debt changes, in practice such effects, if they exist at all, are of too short duration to have any macroeconomic impact.

The Canadian Policy Framework in the 1990s

The basic propositions

Between the 1960s and the 1990s, informed opinion about the appropriate role of central banks shifted radically. The current mainstream view can be briefly summarized in the following four propositions.

First, the main objective of monetary policy is to preserve the value of money, in other words to achieve a very low rate of inflation over the long run. Other economic objectives are not ignored, however, because price stability is the best contribution that monetary policy can make towards high employment and, more generally, towards a prosperous, growing economy. Second, an independent monetary policy or, more precisely, a domestically set objective for inflation, logically requires a floating exchange rate. Third, markets and price mechanisms work efficiently and thus provide effective channels for the transmission of monetary policy through short-term interest rates and the exchange rate. Fourth, short-term interest rates must be adjusted as much as required to meet the monetary policy objective.

Most of the present policy framework is, I hope, reasonably familiar to you. So I will spare you further detail. Instead, I would like to underline the magnitude of the revision that has taken place in accepted thinking about

monetary policy since the Porter Commission, and to speculate on the reasons for the shift.

Contrasts in views about policy objectives

The sharpest apparent contrasts between the ideas and practices I have sketched for the two periods concern the objectives of monetary policy. Nowadays we focus the job of the central bank squarely on the single objective of price stability. In the 1960s, that would have been looked upon by most observers as an extreme and partial view of the role of monetary policy.[19]

What has been learned from the experience over the years is that high and variable inflation can be very costly for the economy and that aiming at low and stable inflation is the best contribution that monetary policy can make to achieving, over time, the multiple economic objectives espoused by Porter. Desirable economic outcomes can never be guaranteed, but chances of achieving them are best when inflation is low and stable. That is, low inflation is an indispensable asset for the achievement of the other economic goals.[20]

Consider, for example, the accepted view during the 1960s that there was an exploitable trade-off between inflation and unemployment. Along with the short-term perspective of policy-makers, this view led to excessively easy monetary and fiscal policies in most industrial countries. In Canada, we found ourselves confronted by an enormous and destructive inflation, with peaks in the mid-1970s and the beginning of the 1980s, and another bout of upward pressure in the late 1980s. Moreover, the high rates of inflation were accompanied by an economic slowdown in the 1970s (reflected in the coining of the term "stagflation") and were followed by unusually sharp economic recessions in the early 1980s and early 1990s.

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19. The Bank has long had a concern about restraining inflation. What was lacking in the past was the support from theory and experience to make that focus more precise and explicit. Public milestones in the evolution of the Bank's views were three lectures by my predecessors: the 1966 Per Jacobsson Lecture by Louis Rasminsky on the objectives of monetary policy and the mechanisms through which it operates; the 1982 Per Jacobsson Lecture by Gerald Bouey, which highlighted the need for a "place to stand" or, in other words, for a "nominal anchor," and the 1988 Hanson Lecture of John Crow, which singled out price stability as the objective of monetary policy in Canada. Also, I would draw attention to Gerald Bouey's final annual report, for 1986, which emphasized the costs of inflation and the difficulty of reducing it once entrenched.

20. For a fuller explanation of the relation between price stability and other economic objectives, see Thiessen (1998–1999).

The idea of an exploitable long-run trade-off between inflation and unemployment was effectively demolished by this experience. And the lesson was reinforced by the success of the firm stance in favour of price stability taken by the German and Japanese central banks in the late 1970s.

The inflation of the 1970s and early 1980s demonstrated just how costly inflation was and how difficult it was to eradicate once rooted in expectations. These experiences were key factors underlying the shift in views about monetary policy. They also were central to the acceptance of the expectations-augmented Phillips curve in place of the simple Phillips curve as part of the analytic framework underlying monetary policy.

This is not just theory or central bank ideology. As we look around the world and over history, we see that countries that achieve high standards of living and sustained strong output growth have also maintained low rates of inflation.

Understanding the role of the exchange rate in monetary policy

As I explained earlier in this lecture, when the Commission was preparing its report, neither the then-current economic theory nor the Canadian experience of the 1950s provided strong evidence for the crucial role that exchange rate flexibility plays in the operation of monetary policy in an open economy like Canada's. When we floated our exchange rate in 1950 and again in 1970, it was because we were pushed off our pegged rate by the pressures of rising commodity prices and associated strong inflows of capital. The notion of a national monetary policy with an independent inflation target did not feature in these decisions.

As we now see it, a floating exchange rate plays two key roles. In the first place, in the long run a floating currency allows the central bank to pursue a national inflation target, regardless of the behaviour of foreign inflation. In the second place, variations in the currency allow the real exchange rate, and hence the economy, to adjust more smoothly to international shocks to relative prices.

It was only after currency and capital controls began to be removed (or were increasingly bypassed) in the post-war period, and domestic financial markets became more deregulated in a number of countries, that economists came to appreciate fully the interaction of domestic interest rates and exchange rates. In open economies with unhindered capital flows, it is only when the real exchange rate moves to levels where it is widely expected to appreciate or depreciate that domestic real interest rates can temporarily move away from their international counterparts.

Furthermore, what we understand much more clearly these days is that movements in the real exchange rate are a major part of the process whereby an economy returns to a sustainable growth path after being hit by a shock. For example, it is well known that a drop in world commodity prices reduces the real equilibrium value of the Canadian dollar. If this is brought about by currency depreciation, the overall domestic price level need not deviate from its target path. In contrast, with a fixed exchange rate, domestic prices would have to fall below that path, and perhaps fall absolutely, to bring about the required decline in the real exchange rate. It is clear that real exchange rate adjustment works much more smoothly when the nominal exchange rate can adjust. However, for the benefits of exchange rate flexibility to be realized, expectations about nominal exchange rates must be anchored by a monetary policy that is focused on maintaining low and stable inflation over the medium term.

Increased confidence in the resilience and efficiency of markets

It would have been unthinkable in the 1960s to have suggested that the central bank's influence over interest rates was, in and of itself, enough to enable it to keep the rate of inflation low and stable. The view at the time was that there were narrow bounds on how far interest rates could be moved, and that these severely limited what the central bank could accomplish by varying them. As a result, moral suasion to affect bank lending policies or direct controls were seen as important additional instruments for central banks.

A key reason for the change in attitude today is an increased confidence in markets. Certainly, at central banks, we are more confident than we were in the 1960s of the ability of financial markets to absorb changes in interest rates. At the same time, we have accumulated strong evidence to support the view that market mechanisms transmit monetary policy actions effectively.

In the 1960s the Porter Commission was ahead of the Bank, and of conventional wisdom, in this. It envisaged a monetary system that in key respects would function much as it does today—driven by market forces, flexible, and frequently undergoing rapid change. In its recommendations for reform, the Commission was looking forward to a world in which monetary policy would be increasingly reliant for its effectiveness on appropriate movements in financial market prices.

In line with this view, the Porter Report maintained that institutions and markets were well able to withstand substantial shocks and warned against letting the conduct of monetary policy be excessively influenced by an undue concern for the stability of asset values. It saw that the aversion to

significant interest rate movements expressed at the time by the Bank of Canada put at risk its ability to achieve its macroeconomic objectives. In one of its more colourful phrases, the Report warned that "the authorities must not be restrained by excessive tenderness."[21]

However, the present confidence in markets is not just a question of philosophy. Since the 1960s, a variety of legislative and structural changes have made the financial sector still more resilient and flexible. This has made the transmission of monetary policy more efficient and has eliminated residual concerns about the inability of the markets to cope with the effects of central bank actions.

Concluding Remarks

Even though the Porter Commission had some remarkable insights, there is no doubt that there has been a major change in views since the 1960s with respect to the objective of monetary policy and the mechanisms through which policy works. Two factors stand out in trying to understand the change. The first is the simple accumulation of experience that has exposed some of the shortcomings in earlier thinking about macroeconomic policy. The second is the advances in the analytic framework available to policy-makers to help them analyze the workings of the economy and of monetary policy. These are not independent factors, of course, since economic analysis does change in response to experience. In this case, it was the inability of the previous framework to provide a satisfactory explanation of the developments in the second half of the 1960s and the 1970s that led to changes in the framework for analyzing the macroeconomy.

Experience of good and bad outcomes has thus played a major role in the development of views about monetary policy. The theory dominating the views of Tony Hampson and his colleagues was developed in response to the Great Depression of the 1930s. However, the views of my generation of central bankers have been coloured by the great inflation that marked our professional years. This brought back to the fore the fundamental truth about inflation being a monetary phenomenon that had become temporarily obscured in the 1950s and 1960s.

I want to make sure, however, that I do not leave you with the impression that views on monetary policy are mere creatures of circumstance. Our belief in the objective of price stability has a more solid foundation than that. A vast range of historical evidence, as well as a large body of economic

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21. Porter Commission Report, pp. 477–78.

theory has long supported this objective as a necessary factor for good performance with respect to output, employment, and growth.

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I would like to end this lecture by drawing attention to the area in which central banking has probably changed most dramatically quite recently. This is the move, particularly during the 1990s, towards much greater transparency and public accountability in monetary policy and in the operations of central banks generally. Here again, the Commission was insightful but did not make strong recommendations for greater transparency.[22]

Since 1991, the use of explicit low-inflation targets as the objective of monetary policy has been the most prominent aspect in Canada of this broader development. We now believe that our actions are likely to be more effective and more credible to the extent that they are more clearly understood and more predictable. Therefore, today we provide the public with large amounts of data and commentary on monetary policy in our regular publications, on the Internet, and in response to specific requests. We also try to give information on the outlook for the economy and monetary policy in our *Monetary Policy Report*, in speeches by Bank of Canada officials, and in the extensive informal contacts of our regional offices across the country. In our Technical Reports and Working Papers and annual economics conferences, the Bank makes its latest research available in a timely fashion. This is a two-way street, by the way, since feedback and criticism is essential to good research.

There has been a similar move to openness with respect to the process of policy implementation. Since 1994, the Bank has announced its operating band for the overnight interest rate, which is now tied to the Bank Rate. And since 1996, press releases providing an explanation of the Bank's actions have accompanied each change in the Bank Rate.[23]

Much of this is quite a break from the past, since traditionally central banks liked to retain a strong element of mystery about their conduct of policy and at times liked to have the capacity to surprise the market with shifts in the supply of reserves to move the overnight rate.

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22. "Mystery leads to misinformation, and monetary policy needs informed public opinion to function effectively and acceptably. As the Governor pointed out, much of this information must be backward-looking, but we believe it need not all be." Porter Commission Report, p. 555.

23. For a detailed discussion of the movement to greater transparency, see Thiessen (1995).

Public opinion has been an underlying driving force in this movement towards transparency. People expect much more than they used to with respect to the accountability of public institutions. The great expansion in higher education over the past 40 years, and with it the rise in sophistication about financial and economic matters, means that the public is more apt to raise questions about economic policies. The amount and the quality of the information that we provide has had to keep in step.

Also, the great inflation, which has had a lasting effect on perceptions about the value of money, has led to a heightened interest in the conduct of monetary policy. Expectations are not held as firmly as they were in the 1950s and early 1960s. People have had to be convinced in recent years that price stability is a credible objective. They still do not take the present low inflation completely for granted. Each action of the central bank is liable to be scrutinized for any sign of backsliding. For example, the volatility of bond and foreign exchange markets, which persists despite almost a decade of low inflation, can partly be attributed to lingering uncertainties with respect to future price movements. At the Bank of Canada, we have taken the position that these concerns are best confronted by making clear statements about the objective and strategy of monetary policy, by releasing our economic analysis to outside examination, and by publishing all relevant data.

It is possible that some future governor of the Bank of Canada will want to give a lecture looking back at monetary policy in the 1990s. I believe that this future governor will be particularly impressed by the influence that demands for transparency and public accountability have had in shifting the culture of central banks and their approach to monetary policy in the 1990s.

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Can a Bank Change? The Evolution of Monetary Policy at the Bank of Canada 1935–2000

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Can a Bank Change? The Evolution of Monetary Policy at the Bank of Canada 1935–2000

I would like to thank the Faculty of Social Science here at the University of Western Ontario for inviting me to deliver this lecture. The Department of Economics within the Faculty is known for its long-standing interest in monetary economics, as well as its appreciation of economic history. I thought that it would be appropriate, therefore, to combine these two elements and use this occasion to reflect upon the dramatic changes that have taken place in the theory and practice of monetary policy in Canada during the Bank of Canada's 65-year history.

Over this period, there has been a fundamental transformation in the way monetary policy is conducted in Canada and in most other industrial countries. While globalization and technological change have played an important role in this area, as in so many others, they have not, to my mind, been the principal driving force behind this transformation. Far more important has been the interaction of experience and economic theory. The puzzling and, at times disappointing, performance of the economy has often served as the catalyst for major theoretical advances and policy innovations. Although the evolutionary process set in motion by these forces has not always been smooth or painless, it has, without question, deepened our understanding of how the economy works. It has also taught us valuable lessons about how monetary policy should be conducted.

One of the most important lessons that monetary authorities have learned through this process of analysis and experimentation is that there is no virtue or advantage in vague policy objectives and complex operating procedures. Simpler and more straightforward approaches have generally turned out to be better. Monetary policy does not need to be cloaked in secrecy or artificial intricacies to be effective. What is needed to get the job done are one clear objective and one simple instrument.

My career in central banking—of just over 37 years—covers more than half of the period since 1935 that I am going to review today. I do not intend, however, to describe every policy development since the early 1960s, when I first joined the Bank, nor all those from the preceding period. Instead, what follows is a selective overview of certain events that I believe were critical to the evolution of monetary policy in Canada. While the conduct of monetary policy will always involve a great deal of uncertainty and imprecision, the steps that we and other central banks have taken to make it

simpler and more transparent have, in my opinion, improved its effectiveness and contribution to economic welfare.

The Beginning: Establishing the Bank of Canada

The Bank of Canada was established in 1935,[1] during the Great Depression. Public confidence in the behaviour of markets, and the financial system in particular, had all but disappeared. Traditional remedies and the natural re-equilibrating forces of the capitalist system did not seem to be having much effect, and there was growing sympathy for more radical solutions.

Still, many observers questioned whether the creation of a central bank would be the answer to Canada's problems. Other countries that had established central banks much earlier had suffered the same collapse in economic activity and were experiencing similar difficulties trying to extricate themselves from the situation. Keynes' *General Theory*[2] would not be published for another year, but there was already widespread scepticism about the likely effectiveness of a more aggressive approach to monetary policy. Interest rates were at historically low levels, and the provision of extra reserves was seen as only adding to the surplus liquidity that already existed in most commercial banks. Nevertheless, excessive credit creation in the period immediately preceding the Depression, and the severe liquidity problems that many borrowers had experienced once it was underway, were generally viewed as important contributors to the collapse, if not the primary cause. Perhaps a central bank, learning from past experience, could reduce the likelihood of a similar occurrence in the future.

Doubts about the usefulness of monetary policy in stabilizing output did not prevent the legislators who drafted the original Bank of Canada Act from giving the Bank a broad and ambitious mandate. According to the preamble of the Act, which is the only description that we have ever had of its basic functions, the Bank was expected to:

> . . . regulate credit and currency in the best interest of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment, so far as may be possible within the scope of monetary action, and generally to promote the economic and financial welfare of the Dominion.[3]

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1. The Bank of Canada Act was actually passed in July 1934, but the Bank did not begin operations until March 1935.
2. J.M. Keynes, *The General Theory of Employment, Interest and Money*, (London: MacMillan, 1936).
3. *Bank of Canada Act*, 1934, c. B-2, Preamble.

While the legislators seemed to appreciate that not all of these objectives were mutually consistent or even attainable with a single policy tool,[4] they may have assumed that the Bank would have more than one instrument at its disposal. Indeed, moral suasion, interest rate ceilings, and various other means of directly influencing the volume and composition of credit had already been used extensively in Canada. The segmented nature of our financial system, in which banking, insurance, trust, and securities activities were all carefully segregated from one another, combined with the high levels of concentration that existed in most of these industries, contributed to the "success" of such an approach. In any event, according to the new Keynesian orthodoxy that was soon to take hold, most of the heavy lifting associated with economic stabilization would be performed by fiscal policy.

To ensure that the new central bank would not be subject to undue influence from either the government or the financial sector, the architects of the Bank of Canada made it a privately owned corporation with widely distributed shares. Neither the shareholders nor senior officers of the Bank were allowed to work in the financial sector, and the only formal representation that the government was permitted was through the Deputy Minister of Finance, who was expected to serve as a non-voting member of the Board of Directors. The Bank's accountability and reporting requirements were limited to the publication of weekly financial statements and an annual report.

Even though Parliament in 1935 was prepared to allow greater public regulation of the economic life of the nation, it realized that some separation of money creation from the government's spending activities was probably important. Subsequent legislation reversed some of this separation by eliminating private equity holdings and making the government the exclusive owner of the Bank's shares. Other restrictions, however, on the government's ability to participate in Board meetings and influence the daily conduct of monetary policy remained in place. The issue of whose will would prevail if there was ever a major disagreement between the Minister of Finance and the Governor of the Bank of Canada was not explicitly addressed until much later.

The contrast between the policy environment in 1935 and that of today could not be more dramatic. Diffuse policy objectives, uncertain reporting lines, interventionist policy measures, and a distrust of financial markets have given way to clearly defined inflation targets, improved governance and accountability, simple operating procedures, and a more open approach to policy formulation and implementation. We now have a single long-run

4. Note the words "so far as may be possible within the scope of monetary action."

objective—price stability—and a single policy instrument—the overnight interest rate. The targets for our objective and our instrument are both publicly announced, and our actions are subject to constant scrutiny and review. The story of how this profound transformation was brought about is the subject of the rest of my lecture.

How Did We Get Here?

The changes that I am about to describe did not happen overnight or in any continuous way. They were the result of a long, and sometimes painful, process of experience, experimentation, academic investigation, and market pressures. At times, Canada was able to trade on the experience of other countries, but on other occasions it had to find its own way. The challenges and problems that we encountered were often unique or unprecedented. Our proximity to the United States, coupled with our smaller size and openness, forced us to confront many of the issues associated with globalization long before the term became fashionable. We have always been the archetypal small open economy.

The early years: 1935 to 1950

The Great Depression may have been exacerbated or even caused by monetary policy errors in Canada and elsewhere, but the newly created Bank of Canada had limited means of dealing with it. Financial markets were not very well developed in the 1930s and the monetary policy instruments at the Bank's disposal did not appear likely to be effective.[5] Interest rates, as noted earlier, had reached historically low levels and commercial banks, with few exceptions, had more than enough liquidity. No serious effort was made, therefore, to mount an aggressive countercyclical policy. Various fiscal initiatives were undertaken prior to the outbreak of the Second World War, but not much progress had been made in reducing unemployment or restoring industrial output to its pre-Depression levels.

Most of the Bank's activities from 1939 to 1945 were directed towards financing the war effort. This involved extending cash advances to the government and overseeing the sale of Victory Bonds. Determined not to repeat the economic mistakes made during the previous war, the government tried to finance most of its expenditures through taxes and new bond issues. Consequently, the Bank's main responsibility immediately after the war was

5. Although Canada was no longer on the gold standard and might have used an exchange rate depreciation to help stimulate the economy, it had a large amount of foreign debt outstanding and a high priority was put on maintaining a stable exchange rate.

to keep interest rates as low as possible, to facilitate the rollover of the massive public debt that had accumulated. In the event, the reconversion of wartime production facilities and the absorption of decommissioned military personnel into the domestic labour force were much easier than many had imagined.[6]

By the late 1940s and early 1950s, however, inflationary pressures had started to build. The Bank and the government tried to suppress them by imposing temporary controls on certain types of bank financing. Some of this was accomplished through explicit legislation, the rest through private conversations between the Governor of the Bank and the presidents of the 10 chartered banks. These actions proved to be insufficient, however, in the face of rising world commodity prices, a booming U.S. economy, large foreign investment inflows, and increased defence expenditures to support the war effort in Korea. All of these factors put upward pressure on the Canadian dollar and made it difficult to control the domestic monetary expansion. With some reluctance, the government was forced to undertake a more decisive and, at the time, revolutionary action.

On 30 September 1950, Douglas Abbott, the Minister of Finance, announced that

> Today the Government, by order in Council under the authority of the Foreign Exchange Control Act, cancelled the official rates of exchange which, since September 19th of last year, had been calculated on the basis of a 10 percent premium for the United States dollar in Canada. It has been decided not to establish any new fixed parity for the Canadian dollar, at this time, nor to prescribe any new official fixed rates of exchange. Instead, rates of exchange will be determined by conditions of supply and demand for foreign currencies in Canada.

With this announcement, Canada abandoned the Bretton Woods system of pegged exchange rates, which had been established at the end of the Second World War, and allowed its currency to float freely in international markets. The resulting appreciation would hopefully discourage some of the inflow of funds, defuse the inflationary pressures that the economy had been experiencing, and obviate the need to pick a new, more sustainable value for the dollar. The flexible exchange rate was expected to remain in place only until markets had settled and a more reasonable value for the dollar had been determined. In fact, the experiment lasted for almost 12 years and had far greater significance than anyone could have imagined.

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6. G.S. Watts, *The Bank of Canada: Origins and Early History*, edited by T.K. Rymes (Ottawa: Carleton University Press, 1993).

Canada was the only major country in the world operating under a flexible exchange rate through the 1950s and early 1960s, and was regarded as something of a renegade in international circles. By the end of 1951, we had also eliminated all remaining controls on foreign exchange transactions and most, if not all, controls on foreign investment inflows. Canada's financial markets were now open and exposed to external shocks. Our experience during this period would serve not only as a model for other industrial countries after the Bretton Woods system collapsed, but also as the catalyst for a revolutionary advance in the theory of international finance.

Few students of Canadian economic history know that Milton Friedman played a role in Canada's decision to float. In 1948, Friedman, then a young Associate Professor at the University of Chicago, participated in a radio debate with Donald Gordon, Deputy Governor of the Bank of Canada, and William Mackintosh, a Professor at Queen's University and an adviser to the Department of Finance.[7] One of the topics that they were asked to discuss was whether Canada should move to a flexible exchange rate. The Bank of Canada and the Department of Finance were both strong supporters of fixed exchange rates, as were most governments at the time. Friedman, as you might expect, spoke with great conviction about the advantages of a flexible exchange rate. Indeed, many of the arguments that he presented would later appear in his classic essay, "The Case for Flexible Exchange Rates."[8] Although the debate did not have any noticeable effect on policy for the next two years, Friedman's ideas seem to have influenced official thinking in Ottawa. A number of secret memos were written within the Bank beginning in 1948, reviewing the feasibility and even desirability of his proposal.[9]

Monetary policy under a floating exchange rate: 1950 to 1962

In 1954, Graham Towers, the first Governor of the Bank of Canada, retired after over 20 years of service and was replaced by James Coyne, one of the authors of the secret memos. Like many Canadians at the time, the new Governor had become increasingly concerned about the level of foreign

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7. M. Friedman, D. Gordon, and W.A. Mackintosh, "Canada and the Problems of World Trade." Transcript of a *University of Chicago Roundtable* radio discussion broadcast in co-operation with the National Broadcasting Company, 18 April 1948 (Chicago: The University of Chicago, 1948).

8. M. Friedman, "The Case for Flexible Exchange Rates." In *Essays in Positive Economics*, (Chicago: University of Chicago Press, 1953), pp. 157–203.

9. See, for example, "A Method of Combining a Free Exchange Rate With the Present System of Exchange Control in Canada." Memorandum, 31 January 1949. Bank of Canada Archives.

ownership in Canada and was anxious to increase national savings as a means of reducing our dependence on foreign capital inflows. Another concern, which was not as widely shared, involved the domestic rate of inflation. Canada had experienced a sharp escalation in consumer prices during the Korean War, and inflationary pressures had persisted for some time after. While domestic spending had faltered in 1954, the subsequent recovery pushed inflation well above the level that the Bank implicitly associated with price stability. Coyne was convinced that the solution to both problems—low savings and high inflation—was a tighter monetary policy. Higher interest rates would reduce domestic demand and help raise national savings.

Although a rudimentary money market had started to form in Canada with the active encouragement of the Bank, it was not well developed. Popular wisdom, in any case, suggested that traditional monetary policy mechanisms were unlikely to be effective, even when they involved tightening monetary policy.[10] As a result, Coyne decided to combine reductions in the supply of bank reserves with healthy doses of moral suasion, much as his predecessor had done in earlier periods.

The Bank continued with this restrictive monetary policy stance through most of the late 1950s and into the early 1960s. In the face of rising unemployment and weakening economic activity, inflation dipped below one per cent by the spring of 1961. Relations between the Bank and the Minister of Finance had deteriorated sharply, and numerous government ministers had demanded a change in policy direction. However, any desire to remove James Coyne and replace him with a more sympathetic Governor ran up against the ambiguous nature of the legislation regarding the government's powers vis-à-vis the Bank. The academic community also became involved in the dispute and circulated a pamphlet entitled "The Economists versus the Bank of Canada."[11] A.W. Phillips had just published his famous paper on unemployment and the growth of money wages in the United Kingdom, and shown how higher (wage) inflation was typically

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10. Doubts about the effectiveness of monetary policy were usually related to the presumed difficulties associated with stimulating the economy (i.e., "Pushing on a string"). Policy tightening was also thought to be ineffective during this period, however, since large interest rate increases were regarded as "unacceptable" and probably destabilizing. See the Bank of Canada's testimony before the Porter Commission (Porter Commission Report. 1964. Report of the Royal Commission on Banking and Finance. Ottawa: Queen's Printer).

11. Thirty prominent Canadian economists also signed a letter to the Minister of Finance calling for the dismissal of Governor Coyne. See H.S. Gordon, *The Economists versus the Bank of Canada*, (Toronto: The Ryerson Press, 1961), pp. v–vi.

associated with lower rates of unemployment.[12] Not surprisingly, Phillips' work found a receptive audience in Canada, and researchers soon replicated his results with North American data.

Much of the commentary in the popular press during this period was also critical of the Bank's policies, and reflected the widespread view that a little more inflation was not such a bad thing—provided it could bring higher employment and stronger output growth. James Coyne remained unconvinced, however. While he had no formal model or elaborate regression results to put forward in his defence, his instincts seem to have told him that any attempt to improve the economy's performance by targeting a higher inflation rate was misguided and could only end in difficulty:

> There are those who sometimes set out the false alternatives of either full employment with inflation, or stable prices with a high level of unemployment. They say the nation must choose between unemployment and inflation. No person in any position of responsibility could possibly subscribe to that doctrine. It is false. Full employment and stable prices are not only compatible, they are in the long run inseparable.[13]

The pathbreaking work of Milton Friedman and Edmund Phelps on the vertical Phillips curve would not be published until 1968, but their results were anticipated by Coyne in many of his speeches.[14, 15] He was convinced that there was no long-run trade-off between unemployment and inflation, except possibly in the sense that lower inflation might actually lead to higher output and employment. Experience and the new theory of rational expectations that would emerge 10 years later confirmed this result and showed that any positive employment effects associated with higher inflation were likely to be shortlived.

There was one critical area, however, where Coyne and many other policy analysts, both within and outside the Bank, appear to have been misguided. Those who had questioned the effectiveness of monetary policy in earlier years had failed to appreciate that it was likely to be much stronger than

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12. A.W. Phillips, "The Relation between Unemployment and the Rate of Change of Money Wages in the United Kingdom, 1861–1957." *Economica* 25 (November 1958): 283–99.

13. J.E. Coyne, Remarks to the Annual Conference of the Business Paper Editors Association, Ottawa, 18 January 1961.

14. M. Friedman, "The Role of Monetary Policy." *American Economic Review* 58 (March 1968): 1–17.

15. E. Phelps, "Money–Wage Dynamics and Labour Market Equilibrium." *Journal of Political Economy* 76 (July/August 1968): 678–711.

fiscal policy under a flexible exchange rate system, especially when capital was highly mobile. The large capital movements triggered by any change in interest rates would put significant pressure on the exchange rate, amplifying the effects of monetary policy while undercutting the effects of any opposing fiscal policy. Coyne did not realize that, for similar reasons, it was unlikely that a tighter monetary policy would ever raise national savings or reduce foreign investment inflows. Robert Mundell, in his article on "The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability," was the first economist to explain this apparent reversal of Keynesian theory.[16] Mundell's article was published in 1962, one year after Coyne had resigned in response to mounting criticism and ongoing efforts to remove him.

The timing of Mundell's work was no coincidence. According to Mundell,[17] the inspiration for his work on policy effectiveness under fixed versus flexible exchange rates was a conversation he happened to overhear while working at the International Monetary Fund (IMF). Wynne Plumptre, Canada's Executive Director at the IMF, was talking to another official in the elevator about a problem that the authorities back home had been wrestling with. The Bank of Canada had been pursuing a restrictive monetary policy in an apparent effort to reduce domestic spending, increase saving, and limit the flow of capital into Canada. While economic activity had slowed, very little progress had been made on improving the trade balance or reducing foreign investment, owing to Canada's strong dollar and high interest rates. Efforts by the Department of Finance to counter the negative effects of the Bank's monetary policy through fiscal stimulus and to return the economy to full employment had thus far been unsuccessful. Government analysts were at a loss to explain why.

The rest, as they say, is history. Mundell had written a number of papers on international capital flows as part of his PhD thesis, and this chance encounter seems to have been something of an epiphany. Suddenly, many of the ideas that he had been working on were transformed into a coherent model of the way the global economy worked in the presence of capital mobility.

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16. R.A. Mundell, "The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability." *International Monetary Fund Staff Papers* 9 (March 1962): 70–76.
17. As told by R. Mundell to J. Murray, Bank of Canada.

Downward-sloping Phillips curves and the dash for growth: 1962 to 1970

The controversy surrounding James Coyne's departure in 1961, together with publicly expressed government concerns that the value of the dollar was too high and that a nationalist program was needed to reduce foreign investment, put downward pressure on the Canadian dollar. It fell from a slight premium vis-à-vis the U.S. dollar to roughly 95 cents (US) within a few months. Efforts to halt the decline through aggressive intervention in the foreign exchange market were unsuccessful. On 2 May 1962, the government decided to return to the Bretton Woods system and fix the value of the Canadian dollar at 92.5 cents (US). Unfortunately, it took some time for academics and policy-makers to appreciate the full implications of Mundell's work. Indeed, there is nothing that I am aware of in the official documents written over the next few years that would indicate whether the Bank or the Department of Finance fully appreciated that, by returning to a pegged exchange rate system, the government would effectively neutralize whatever independent influence monetary policy might have on the macroeconomy.

With domestic fiscal policy on a strong expansionary track, and monetary policy constrained by the new exchange rate peg, the Bank of Canada would have no way of resisting the inflationary pressures that were gradually building in the second half of the 1960s. Government expenditures in Canada were growing at an accelerating rate with the new health care and unemployment insurance systems that had been introduced. Similar pressures were emerging in the United States in response to the Vietnam War and President Johnson's program for a Great Society. With a fixed exchange rate, these pressures would inevitably spill over into Canada.

Few serious concerns about inflation, however, were expressed outside central banking circles. Phillips and his followers had shown how a little bit of inflation might be beneficial, and monetary authorities were encouraged to be more forgiving. "Reasonable price stability" was touted as a preferred policy objective by the Economic Council of Canada, and "inflation-unemployment trade-off zones" were dutifully reproduced in many of its publications.[18]

Another development during this period is also worth noting. It concerns the clarification of the roles and responsibilities of the government and the Bank of Canada with regard to monetary policy. Louis Rasminsky, who had

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18. See, for example, Economic Council of Canada, "Prices, Productivity and Employment." In *Third Annual Review* (Ottawa: Queen's Printer, 1966).

succeeded James Coyne as Governor in May 1961, had insisted as a condition of his appointment that the government's powers regarding monetary policy be clearly defined.[19] The Bank of Canada Act was amended in 1967 to allow the government to issue a directive to the Bank in the event there was a serious disagreement over the conduct of monetary policy. Under this amendment, the government would have the right to override the Bank's policy decisions. To do so, however, the Minister of Finance would have to publish the reasons for his (her) dissatisfaction, indicating both the new measures that the Bank was supposed to undertake as well as the period during which they were to apply. It was generally agreed, I believe, that such a "nuclear weapon" would only be used when there was a fundamental disagreement between the Governor and the Minister, and that following its use, the Governor would resign. In this way, the rights of a democratically elected government to determine policy were balanced against the needs of the Bank for operational independence. While governments must always have the final say in important policy matters, the Bank had to be protected from undue political influence in its day-to-day operations. A key element that was missing from this solution was a clear measure by which the government and the public could judge the Bank's performance.

Stagflation and monetarism: 1971 to 1981

The early 1970s began much like the 1950s. Foreign capital was flowing into Canada at an unprecedented rate and the Bank of Canada was finding it difficult to resist the upward pressure on the Canadian dollar. Rather than guess where the new equilibrium exchange rate might lie, the government again decided to let the currency float. As in the 1950s, this move was regarded as a temporary measure. Within three years, however, the rest of the Bretton Woods system had collapsed. While Canada's decision was in no way responsible for what followed, its positive experience with a floating exchange rate through the 1950s and the early 1970s did provide some assurance to other countries that the new regime was at least workable.

Canada was now able to pursue an independent monetary policy. The Bank's efforts in the face of building international inflation pressures, however, proved to be insufficient. Outdated views about the Phillips curve, overly ambitious estimates of the natural rate of unemployment, and a concern about letting the Canadian dollar appreciate much above US$1, contributed to the problem. The Bank of Canada was not unusual in this regard, and its

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19. B. Muirhead, "Into the Breach." In *Against the Odds: The Public Life and Times of Louis Rasminsky* (Toronto: University Press, 1999) pp. 167–82.

performance did not differ noticeably from that of most other central banks. Economic thinking among the major industrial countries was very similar, and received wisdom was, for the most part, imported from the United States.

Although Canada's experience had, in effect, been providing the rest of the world with an example of how an open economy operates in the presence of near-perfect capital mobility, it went largely unnoticed. Closed-economy concepts continued to dominate most national policy discussions. While Mundell's results were slowly filtering through the academic community, they had not yet reached the ranks of practising economists. Little recognition was given to the effects that market liberalization and different exchange rate arrangements might have on policy outcomes.

In the meantime, the combination of generalized excess demand in the world economy and the OPEC oil cartel had sent inflation and unemployment soaring to post-war highs. Policy-makers in Canada and elsewhere were having difficulty dealing with this stagflation and were initially confused by the twin phenomena of rising inflation and high unemployment. Within a short time, however, three things had become evident. First, higher inflation was not always associated with higher output and employment. The Phillips curve was not only vertical in the long run, but was probably upward-sloping. Second, efforts to fine-tune the real economy were likely to end in failure. Optimism about our ability to forecast and about the level of full employment introduced a strong inflationary bias to fiscal and monetary policies. Third, money mattered and was the ultimate source of all sustained inflation. Excessive government spending and other positive demand shocks could not generate ongoing inflation unless monetary policy was prepared to validate it.

To avoid similar problems in the future, many central banks began to target the monetary aggregates. If, as Friedman suggested, inflation was always and everywhere a monetary phenomenon, a gradual deceleration in the rate of money growth would eventually squeeze it out of the system. Once this had been accomplished, money growth could be set just high enough to meet the legitimate needs of the economy—thereby ensuring long-run price stability. If the new money targets were publicly announced and fully credible, some monetarists argued, it might even be possible to achieve this disinflation without any significant loss in output. If this proved to be impossible, some deterioration in economic performance would have to be accepted. A "gradualist" approach, however, would ensure that this was kept to a minimum. While fixed money targets might not deliver the best of all worlds, they were regarded as the safest alternative in a second-best world. Trying to forecast the future and optimally adjust fiscal and monetary policy

settings had proved not only to be impossible but also potentially destabilizing.

Canada adopted a target for the narrow monetary aggregate, M1, in the autumn of 1975, a short time after the United States and Germany. For a while, the strategy appeared to be working. Inflation began to decelerate, and the economy began to recover from the 1974–75 recession. While some of this early success could be credited to the wage and price controls that the government had introduced in late 1975, proponents of the monetarist view believed that Canada would soon be on its way to price stability.

Initial optimism over what the monetary targets could deliver soon gave way to frustration as inflation began to rise again in the late 1970s. A second oil shock and continued fiscal expansion added to the inflation pressures that were already in place. By the early 1980s, inflation had returned to double-digit levels, and inflationary expectations were again beginning to accelerate. Research at the Bank revealed that one of the reasons for the weak relationship between the movements in M1 and subsequent changes in prices was the high interest elasticity of the demand for this narrow money aggregate. The modest changes in interest rates that were required in the short run to keep M1 within its target band were not enough to have much impact on real output or prices.[20]

Another, more serious, problem in using M1 was the uncertain impact of financial innovation. Technological developments had allowed financial institutions to introduce a number of new products designed to help depositors protect themselves from high inflation by shifting their idle balances into daily interest savings accounts. This weakened the relationship between M1 and the other macroeconomic variables that normally influenced its behaviour, and made it difficult for the Bank to interpret its movements.

The search for a new nominal anchor: 1982 to 1990

In 1982, after several disappointments, the Bank of Canada reluctantly conceded that the monetarist experiment had not worked and that the Bank would no longer be targeting M1. Movements in the monetary aggregates would continue to be monitored for any information they might provide on future economic developments, but no aggregate appeared to be sufficiently reliable to serve as an intermediate target. Similar difficulties were

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20. G.G. Thiessen, "The Canadian Experience with Monetary Targeting." In *Central Bank Views on Monetary Targeting*, 1983, p. 100–104. Proceedings of a conference held at the Federal Reserve Bank of New York, May 1982. New York: Federal Reserve Bank of New York.

experienced in other industrial countries that had adopted money targets and, one by one, they were forced to follow Canada's example. Gerald Bouey, who had succeeded Louis Rasminsky as Governor of the Bank of Canada in 1973, probably summarized the situation as well as anyone when he said: "We did not abandon M1, M1 abandoned us."[21]

The search for a new nominal anchor had begun well before the Bank announced it would no longer be targeting M1, but without much success. Alternative definitions of money were tested and found to be equally unstable. For a time, nominal income was used as a guide for the Bank's internal forecasting exercise, but it was also deemed to be unsuitable as an intermediate target. While it included the two variables that macroeconomists cared about most—output and prices—precise judgments were still required about the state of the real economy in order to make it work. Moreover, explaining nominal-income targeting to the public would be difficult. Inflation and money growth were generally regarded as legitimate central bank objectives, but efforts to control the level of spending and income might be seen as too invasive and suspiciously close to trying to control the level of employment.

Although conducting monetary policy without a clear objective posed certain problems, the eclectic approach that the Bank was forced to follow after it abandoned M1 did yield some results. The strong monetary policy medicine that Canada had applied in early 1981, following similar action in the United States, soon brought inflation down. And within a short period of time, output and employment also began to recover. Through most of the 1980s, inflation hovered in a range of 3 to 5 per cent. While the decade as a whole was viewed by many as a time of prosperity and growing optimism, much of this apparent affluence was based on speculative activities focused particularly on the real estate sector. Expansionary fiscal policies and rising world commodity prices were again generating strong inflationary pressures, which monetary policy was trying to resist. These pressures were largely masked, however, by the sharply appreciating exchange rate.

Without an explicit target for monetary policy, the Bank had difficulty explaining its policy actions. In addition, there was no obvious basis on which to judge its performance. One could use rough qualitative benchmarks such as strong growth, rising employment, and the absence of high inflation as performance measures, but monetary policy needed a firmer place to stand. It was supposed to provide a nominal anchor for the economy, but

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21. House of Commons Standing Committee on Finance, Trade and Economic Affairs. *Minutes of Proceedings and Evidence*, No. 134, 28 March 1983, p.12.

seemed to be lacking an anchor of its own to help guide policy decisions and ensure accountability. As Gerald Bouey explained in 1982,

> Central bankers are always looking for more reliable guides to the conduct of monetary policy than they have had. Part of the reason is that they want to find a better place to stand against the constant pressures that arise from many sources— almost irrespective of economic conditions—for easier money and lower interest rates.[22]

From today's perspective, explicit inflation targets might seem like an obvious alternative, but price stability had not yet been widely accepted as the pre-eminent objective of monetary policy. Graham Towers, James Coyne, Louis Rasminsky, and Gerald Bouey had extolled the virtues of price stability and had regarded it as one of the Bank's most important objectives. But it had never been defined and the extent of the Bank's commitment to achieving it was not always clear. The major preoccupation of the 1970s and early 1980s had been to "get inflation down." How far down was a question that could be postponed for a later day, once we were within striking distance of this nirvana.

The problems that arose because there was no clearly articulated and credible objective or end point for monetary policy were most evident in financial markets. Changes in U.S. interest rates or some other external shock would often produce exaggerated swings in Canadian interest rates and the exchange rate, and made it difficult for the Bank to control domestic monetary conditions. A sudden increase in U.S. interest rates, for example, would put sharp downward pressure on the Canadian dollar, causing import prices to rise and raising concerns about the future course of inflation. Because inflation expectations were not firmly anchored, prices in other areas of the economy would also come under upward pressure, setting off a potential inflationary spiral. Investors, worried about the future value of their money, would start to demand much higher rates of interest. The end result was higher interest rates, a weaker dollar, and much stronger inflation expectations than the domestic economic conditions alone would warrant.

Any efforts to keep interest rates low and to support economic activity were often misinterpreted as signs that the Bank was, in fact, pursuing an inflationary policy and would only make matters worse. As a result, the Bank found itself having to follow the U.S. lead on interest rates and resist downward movements in the exchange rate for tactical reasons. Failure "to defend the Canadian dollar" would produce even larger increases in domestic interest rates and inflict more serious damage on the economy.

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22. G.K. Bouey, "Monetary Policy: Finding a Place to Stand." The 1982 Per Jacobsson Lecture, University of Toronto, Toronto, Ontario, 5 September.

A major step towards dealing with this problem was taken in January 1988, when John Crow, the Bank's new Governor, delivered his Hanson Memorial Lecture at the University of Alberta. Price stability was set out explicitly as the Bank's prime objective and, realistically, the only thing that it could deliver with the tools at its disposal. The hard lessons that had been learned from past experience were reviewed, as well as the advantages that might be realized with the consistent attainment of this objective:

> What pace of monetary expansion is most helpful to the development of the Canadian economy? Theory and experience—much of this experience not overly cheerful but certainly instructive—both point to a very clear answer. Monetary policy should be conducted so as to achieve a pace of monetary expansion that promotes stability in the value of money. This means pursuing a policy aimed at achieving and maintaining stable prices.[23]

The Hanson lecture contained probably the strongest commitment to price stability that had ever come from the Bank of Canada. It was designed to convince people that the Bank would do whatever was necessary to achieve price stability. Businesses, households, and the government were, in effect, put on notice—any investment and spending plans that were based on inflationary expectations were likely to end in disappointment.

Price stability, although often referred to, was not, however, clearly defined. It was presumably much lower than the prevailing rate of inflation (which was hovering around 4 per cent and under upward pressure), but this was not made explicit. In addition, the path that inflation was expected to follow on the way to price stability was not outlined. A desired inflation path was an important part of the Bank's internal projection exercise, but it was not announced publicly.

Inflation targets: 1991 to 2000

All of this changed in February 1991, when the Bank of Canada, in a joint statement with the Minister of Finance, announced the introduction of inflation-reduction targets. Academic economists had not been advocating targets focused directly on inflation. They had, however, already built a strong case for some form of nominal anchor, arguing that an explicit commitment of this sort would improve central bank accountability, help shape expectations, facilitate the disinflationary process, and allow central banks to avoid something known as the time-inconsistency problem.

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23. J. Crow, "The Work of Canadian Monetary Policy." The Eric J. Hanson Memorial Lecture, University of Alberta, Edmonton. *Bank of Canada Review* (February 1988): 3–17.

According to the time-inconsistency theory, monetary authorities were subject to a serious inflationary bias. If a central bank could initiate an unexpected easing in monetary policy, it might be possible to raise short-term output and employment. However, once businesses and households realized what had happened, they would quickly revise their inflation expectations, and output and employment would return to their original equilibrium levels. Because businesses and households knew that central banks were always subject to this temptation, they would assume that central banks might try to trick them (even when no monetary policy easing was being planned) and would raise their inflation expectations in anticipation. The end result was a kind of prisoner's dilemma, in which inflation was higher than it would otherwise be, while employment and output remained unchanged. Without some form of credible commitment that would allow monetary authorities to foreswear such policy actions, society was trapped in an inferior equilibrium.

Inflation targeting, though it had not been proposed by any of the time-inconsistency authors, might be a way to correct this problem. The public nature of announced targets would raise the costs associated with any failure to meet them and, hopefully, move the economy towards the preferred, low-inflation equilibrium.

Central banks were quite skeptical about whether the time-inconsistency literature provided a useful or accurate description of the situation in which they found themselves.[24] Even so, the idea of inflation-reduction targets did have strong appeal, but central banks were still reluctant to adopt them. Their resistance can probably be credited to two things. First, central banks were worried about what would happen to their credibility if, for some reason, they failed to meet the inflation objectives. Second, they were concerned that the inflation targets might be too constraining. Their ability to deal with unexpected shocks, such as an oil crisis or a jump in other world commodity prices, would be severely restricted unless the target bands were quite forgiving. But if the inflation target range was wide enough to accommodate these sorts of disturbances, it was unlikely to provide much discipline or comfort in more tranquil periods.

The answer to both problems is now clear. If central banks are unable to achieve and maintain their targets on a regular basis, this is something that should be shared with the public. Credibility is not enhanced by the absence

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24. Central banks believed that there was an inflationary bias in the system, but that the pressure came from governments rather than any desire on their part to boost output and employment through an unexpected jump in inflation. (See P. Howitt, 2000. "Learning about Monetary Policy and Theory." Brown University Working Paper. Unpublished.)

of targets. Special exceptions can be made for commodity-price shocks and other unusual events, as long as the monetary authority has a plausible explanation. The advantage of inflation targets, even if they occasionally cannot be achieved, is that they provide a convenient basis from which policy actions and outcomes can be judged.

It was one thing to understand these points on a conceptual level, it was another to put them into practice. Canada was the second country in the post-war period to introduce inflation targets (New Zealand was first). Even then, it is unlikely that targets would have been adopted as early as 1991 if the government had not been planning to introduce a new goods and services tax (GST). The government actively supported the introduction of inflation targets because it was seen as a way of preventing the one-time jump in prices associated with the GST from becoming entrenched in inflation expectations. More specifically, it would help to reassure government employees who were subject to salary restraints, as well as other wage earners, that inflation would be held in check.[25]

The lower and upper bounds of the original inflation-reduction targets were set at 2 and 4 per cent, respectively, with a midpoint of 3 per cent. These bounds were to gradually decline to 1 and 3 per cent by the end of 1995. At this point, a new inflation target was to be announced, consistent with long-run price stability and based on the experience of the previous four years. While the inflation targets have been renewed twice during the past nine years, neither the government nor the Bank were convinced on those occasions that the conditions were right for a final determination of where the long-run target should be set. The Bank decided that further research and experience with the existing targets were needed before committing itself in this manner.

As I have pointed out elsewhere,[26] inflation-control targets have had a major impact on the Bank and on the way it conducts monetary policy. Perhaps the most important influence has been to encourage greater transparency. With an explicit target for inflation and the central bank accountable for achieving that target, there is a strong incentive to be as forthright as possible about any trends in the economy likely to influence inflation, the decisions policy-makers may have to take to achieve the targets, the shocks that may

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25. The Economic Council of Canada had also recommended that Canada adopt inflation targets in its 1990 report. Economic Council of Canada. *Transition for the 90s. Twenty-Seventh Annual Review* (Ottawa: Supply and Services Canada, 1990).

26. G. Thiessen, "The Canadian Experience with Targets for Inflation Control." The 1998 Gibson Lecture, Queen's University, Kingston, Ontario, 15 October.

temporarily push inflation outside the target range, and the pace at which inflation can be returned to the target.

As monetary policy has become more transparent, it has become evident that it works more effectively when financial markets and the public understand what the Bank is doing and why. We no longer regard surprise as an important element in monetary policy actions. We prefer to see private agents anticipate, rather than respond to, monetary policy actions.

Where Are We Now?

Monetary policy has come a long way since 1935. It is now directed towards a single long-run objective: the attainment and maintenance of price stability. Monetary authorities in Canada and elsewhere have realized that this is the best contribution that monetary policy can make to economic welfare, and indeed the only one that they can deliver on an ongoing basis. There is no inherent conflict between price stability and most of the other objectives that are set out in the preamble to the Bank of Canada Act. Focusing on price stability helps us to guard against the sort of systematic errors that often occurred when we tried to aim directly at output and employment. Optimistic estimates of potential output and full employment in the early 1970s introduced a strong inflationary bias into the policy-formulation process and did not deliver any of the long-run improvements in real economic performance that the Phillips-curve literature had promised.

Today's monetary policy differs from past approaches in yet another important way. It is conducted in a far more open and less-complicated manner. Secrecy and surprise are no longer critical elements of our modus operandi. The Bank tries to work with markets, rather than against them, to avoid surprising them with unexpected actions. Greater transparency facilitates the policy-transmission process by conditioning market expectations, and helps avoid unnecessary confusion about the reasons for our actions.

Various techniques for manipulating domestic credit conditions and the external value of the currency by means of direct controls, moral suasion, and active foreign exchange market intervention are no longer used. Globalization and market liberalization have eliminated many of the barriers that used to separate different segments of the domestic financial system and have subjected them to increased international competition. As a result, these techniques became both less effective and more costly in terms of their impact on market efficiency. Monetary authorities now have a clearer

understanding of the limitations of alternative policy measures, as well as more sympathy for indirect, market-based solutions.

Monetary policy is now implemented in a more straightforward manner. Today, policy adjustments are effected and signalled to the market mainly through announced changes in the Bank Rate and the target band for the overnight interest rate. Private agents are then free to determine how these changes will be transmitted through the rest of the financial system and the economy in general. The Bank simply issues a press release indicating what the new Bank Rate is, and this in turn anchors the short-term end of the yield curve.

Central bank independence and accountability have also been more clearly defined. As I explained earlier, the 1967 amendments to the Bank of Canada Act allow the Minister of Finance, acting on behalf of the government, to issue a directive to the Governor if serious differences arise on the conduct of monetary policy that cannot be resolved. The directive must indicate the specific policy changes that the Bank is supposed to undertake. Ultimate responsibility for monetary policy, therefore, rests where it should in a democratic society—with the elected government. But because of the consequences of issuing a directive, it is likely to be used only in unusual circumstances. Thus, a high degree of operational independence has, nevertheless, been preserved to allow the Bank to maintain its medium-term focus for monetary policy without the short-run pressures that arise in the political process.

Moreover, the explicit targets for inflation control in Canada have been set jointly by the Bank and the Minister of Finance. It is then the Bank's responsibility to achieve the agreed target. An explicit objective, a clear assignment of responsibility for achieving it, as well as the appropriate instrument and independence of action to do what is required to meet the objective, are crucial ingredients in an effective process of accountability. That is what we now have in place in Canada for monetary policy.

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Where does all this leave us? We now have a much better understanding of what monetary policy should be asked to do, who should be responsible for it, and how it should be conducted. But has the evolutionary process been pushed as far as it can go? Is the transformation of monetary policy coming to an end? The answer, of course, is no. But I will leave it to my successor to return at some point in the future and update you on the evolving path of monetary policy in Canada.

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